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OBER ET AL (703) 413-3000
 INVENTOR Michel ARTHUR, ET AL.
 DOCKET # 0660- 0155- 0 SHEET 1 of 94

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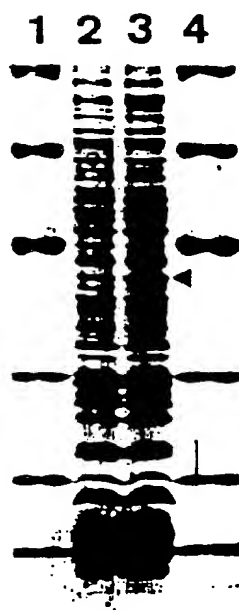


FIG. 1

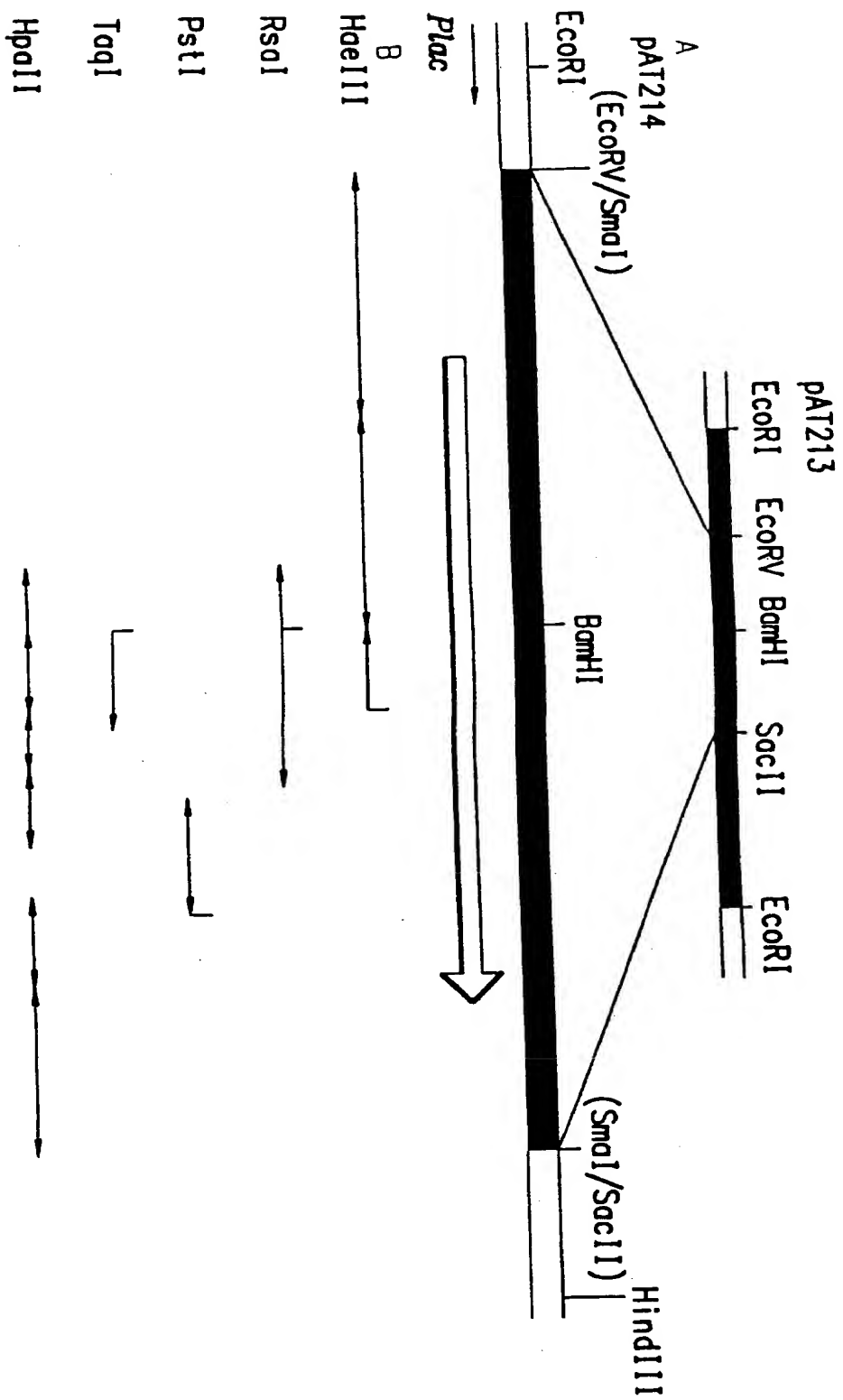


FIG.2

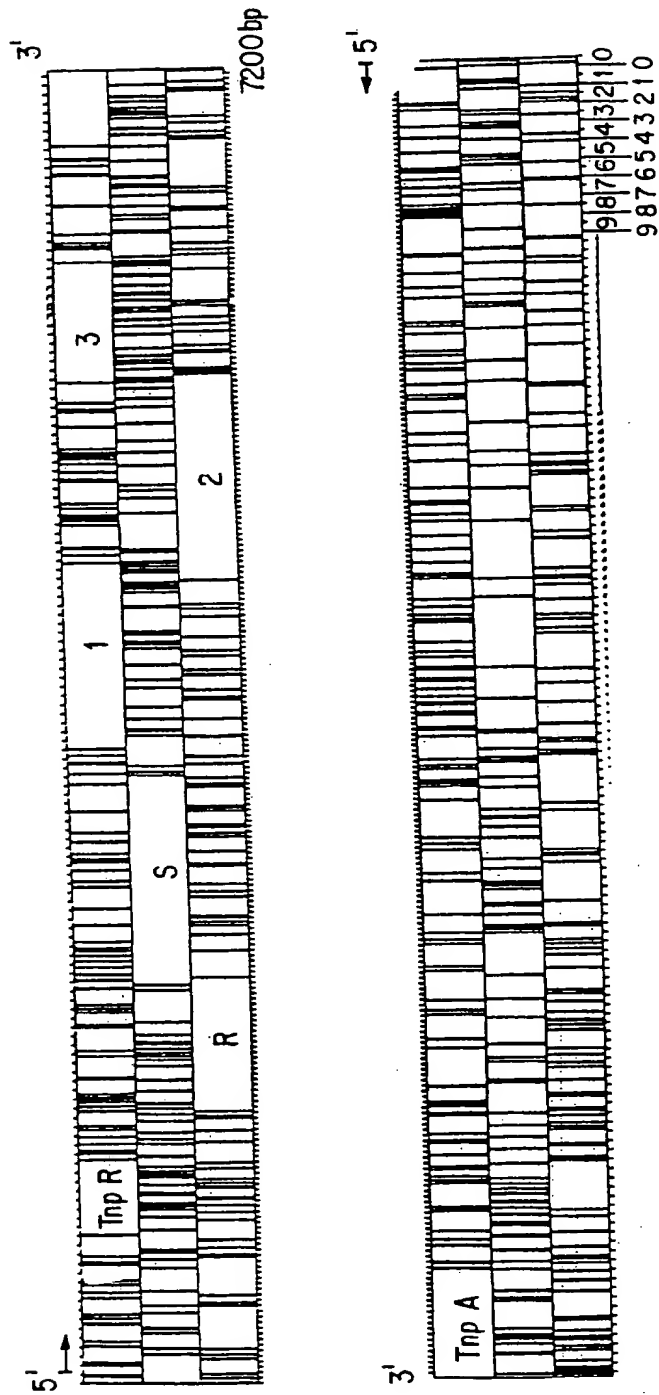


FIG. 3A

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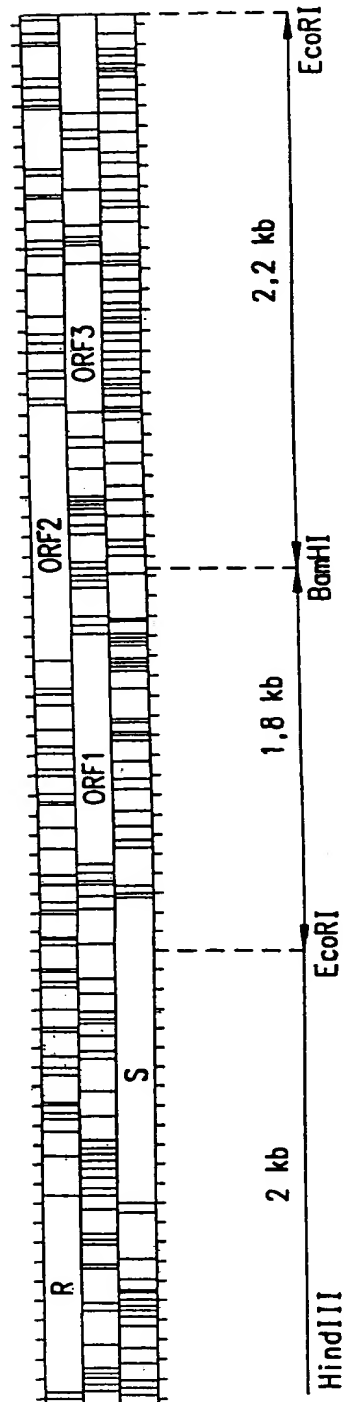


FIG. 3B

FIG. 4A

AAGCTTTTCTTTTGCTCATTGTTAGAGATTTACTAACCGTATTAAATAGCTTCTTTTC
AGCCATTGCCCTTGCTTCCACACCATTCITTCAGGTGATGATAGCAGGCAGTATTAAT
TTTGTTTTTCTTAGAAATCTATGCAATTCATGCAGTAGATGAATGGCATCACCATTTTC
CAAAGCTAATTGATGAAGGTACTTAAATGTCATTCGATATTCACICAGGGTAAAGTTAC
AAAGTCGTATTCACCTTCGAATTTCTTTCAAATGATCCCAAAGTGATTTTCCCTTTGAGG
ATAATGATCAAGCGAGGATGGACTAACACCAATCTGTTCGATATATATTGTATGACCGA
ATCTGGGATGCTTTTGATATGAGTGTATGGCCAACCCGGGATACCGAAGAACAGCTAATTG
AACAGCAATCCTTAACGGTTTCTTCCCTCCTTCGCTTATTAACTATTCTAAATCCCG
TTTGGAATAAGTGAAGTAGGTCCCGATCCCATTCATCTTCAGGGATTTCATATAAAGC
CTGTCTCTGTICCGGTGAAGCAATCTCTACCTCTCGCAATTTTCATTCAGTATCATTC
CATTTCTGTATTTCAATTTATTAGTTCATATATATCAATAGAGTGACTCTATTGAT
ACAAATGTAGTACTGATAAAATCATAGTTAAGAGCGTCTCATAGACTTGTCTCAAAA
ATGAGGTGATATTTGCGGAATACTGCTTATATTCGTGTCAGTTCGACTAACCGAATCC
TTCAGACACAATTTAGCAGTTGACGAGATCGGAATGGATATTATATAAGAGAAAGTTT
CAGGAGCAACAAGGATCGCGAGCAACTTCAAAAAGTGTAGACGATTTACAGGAGAGATG
ACATCATTTAIGTTACAGACTTAACTCGAATCACTCGTAGTACACAAGATCTATTGAAAT
TAATCGATACATACGAGATAAAAGGCAAGTTTAAATCACTAAAGATACATGGCTTG
ATTTATCAGAGATAATCCATACAGCCCAATCTTAAATTAAGTAAAGATACATGGCTTG
AATTAGAGCGAGATCTTATTCGGATGAGACAACGTGAAGGGATTGAATTTGGCTAAGAAAG
AAGGAAAGTTTAAAGGTGATTAAGGAAGTATCATAAAAATCACGAGGAATGAATTAAG
CGGXAAAGCTATATAAGAGAGGAATATGACTGTAAATCAAAATTTGTGAATTAATAAT
GTATCTAGGGCTTCATTTATACAGGAAATTTATCAGAAAGTGAATAATTAGCCATTCTGTAAT
CCGCTAATGGGCAATATTTTAAAGGAAGAAAGGAACTATAAAATATTACAGCCCTCT
AGCGATGCCGAAAGCCCTTTIGATAAAAAAGAAATCATCTTAAGAAATCTTAGTCA
TTTATTATGTAAATGCTTATAAATTCGGCCCTATAATCTGATAAATTAATTAGGGCAAC

FIG. 4B

TTATGTGAAGGGTGATAACTATGAGCGATAAAATACITATTTGGATGATGAACATGAA
ATTGCCGATTTGGTTGAATTATACTTAAAAACGAGAAATATACGGTTTTCAAATACTAT
ACGCCAAAGAGCATTTGGAATGTATAGACAGTCTGAGATTGACCTTGCCATATTGGAC
ATCATGCTTCCGGCACAGCGGCTTACTATCTGTCAAAAATAAGGGACACACACACC
TATCCGATTATCATGCTGACCGGGAAGATACAGAGGTAGATAAATTACAGGGTTAACCA
ATCGCGCGGATGATTATATACGAGGCCCTTTCGCCCACTGGAGTTAATTGCTCGGGTA
AAGGCCCAGTTGCGCGGATACAAAAAATTCAGTGGAGTAAGGAGCAGAACGAAAAATGTT
ATCGTCCACTCCGGCTTGTCTATTATGTTAACACCCCATGAGTGTATCTGACGAGAG
CAGTTATCCCTTACTCCACCGAGTTTCAATACCTGCGAATCCTCTGTGAACAACAGGGG
AATGTGGTTAGCTCCGAGCTGCTATTTCATGAGATATGGGGCGACGAATATTCAGCAAG
AGCAACAACACCATCACCGTGCATATCCGGCATTTGCGGAAAAAATGAAACGACACCAT
GATAATCCGAAATATATAAAACCGGTATGGGGGTTGGTTATAAAATTGAATAATAAAA
AAACGACTATTCCAAACTAGAACGAAACATTTACATGTATATCGTTGCAATTGTTGGT
AGCAATTGTATTCGTGTTGTATATTCGTTCAATGATCCGAGGGAACTTGGGGATTGGAT
CTTAAGTATTTGGAAAAACAATATGACTTAATCACCTGGACGCGATGAATTATATCA
ATATTCATACGGAAACAATATAGATATCTTTATTTATGTGGCGATTGTCAATTAGTATTCT
TATTCATGTGCGGTCTGCTTTCAGAAATTCGCAAAATACCTTGACGAGATAAATACCGG
CATTGATGTACTTATTCAGAACGAGATAAACAAATTGAGCTTTCGCGGAAATGGATGT
TATGGAAACAAGCTCAACACATTAACACGGACTTCGGAAGCGAGAGCAGGATGCAAA
GCTGGCCGAACAAGAAAAATGACGTTGTTATGTACTTGGCGCACGATATAAACGCC
CCTTACATCCATTATCGGTTATTGAGCCCTGCTTGACGAGGCTCCAGACATGCCGGTAGA
TCAAAAGGCAAGTATGTGCATATCACGTTGGACAAAGCGTATCGACTCGAACAGCTAAT
CGACGAGTTTGTGAGATTACACGGTATAACCTACAACGATTAACGCTAACAAAAACGCA
CATAGACCTATACATATGCTGTTGTCAGATGACCGATGAATTTATCCTCAGCTTTCGGC
ACATGGAAACAGCGGTTATTCACGCCCCCGAGGATCTGACCGTGTCCGGCGACCTGA

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FIG. 4C

TAAACTCGGAGAGTCTTTAACACACATTTTGAAAAACGCCGCTGCATACAGTGAGGATAA
CAGCATCATTGACATTACCGCGGCTCTCCGGGATGTGGTGTCAATCGAATTCAGGAA
CACTGGAGGATCCCAAAGATAAGCTAGCTGCCATATTTGAAAAGTCTCTATAGGCTGGA
CAATTCCTCGTTCTCCGATACGGGTGGCGGGGACTTGGATTGGCGATTGC AAAAGAAAT
TATTGTTTCAGCATGGAGGGCAGATTACCGGGAAGCTATGATAACTATACGACGTTTAG
GGTAGAGCTTCCAGCGATGCCAGACTTGGTTGATAAAGGAGGTCCCTAAGAGATGTATAT
AATTTTTCAGGAAATCTCAAGGTTATCTTTACTTTTCTTAGGAAATTAACCAATTTAAT
ATTAGAAACGGCTCGTTCTTACACGGTAGACTTAATACCGTAGAAGAGCCGTTTTCG
TTCTTCAGAGAAAGATTTGACAAGATTACCATTGGCATCCCGTTTATTTGGTGCCTTT
CACAGAAAGGTTGGTCTTAATTATGATAACATCGGCATTACIGTTTATGGATGTGAGC
AGGATGAGGCGAGATGCATTCCATGCTCTTTCGCTCGCTTTGGCGTTATGGCAACGATAA
TTAACGCCAACGTGTCGGAATCCACGCCAATCCGCGCTTTCATCAATCAATGTATCAGTG
TGGGACATAAATCAGAGATTTCGCGCTCTATTCTTTCGCGCTGAGAGAGAGCCGGTGTGA
AATATAATTTCTACCCGAGCATCGGCTGCAATCATATAGATACAACTGCTGCTAAGAGAA
TGGGCATCACTGTCGACAAATGTGGCGTACTCGCCGGATAGCGTIGCCGATTATACTATGA
TGCTAATTTCTATGGCAGTACGCAACGTAAATCGATTGTGCGCTCTGTGGA AAAACATG
ATTCAGGTTGGACAGCGACCGTGGCAAGGTACTCAGCGACATGACAGTTGGTGTGGTGG
GAACGGGCCAGATAGGCAAGCGGTTATTGAGCGGCTGCGAGGATTGGATGTAAAGTGT
TGGCTTATAGTCGACGCCGAGGTATAGAGGTAAACTATGTACCGTTTGATGAGTGTCTGC
AAAAATAGCGGATATCGTTACGCTTTCATGTGCGCTCAATACGGATACGCATATATTATCA
GCCACGAACAAATACAGAGAAATGAAGCAAGGAGCATTTCTTATCAATACTGGCGCGGTC
CACTTGTAGATACCTATGAGTTGGTTAAGCATTAGAAAACGGGAACTGGCGGGTGGCCG
CATTGGATGTATTGGAAGGAGGAGAGAGTTTCTACTCTGATTGCACCCCAA AACCAA
TTGATAATCAATTTTACTTAACCTTCAAGAAATGCCCTAACGTGATAATCACACCGCAT
CGGCCCTATTATACCGAGCAAGCGTTGCGTGATACCGTTGAAA AAACCATTA AAACCTGT

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FIG. 4D

TGGATTTTGAAAGGAGACAGGAGCATGAATAGAAATAAAGTTGCAATACTGTITGGGGGT
TGCTCAGAGGAGCATGACGTATCGGTAAAACTTGCAATAGAGATAGCCGCTAACATTAAT
AAAGAAATACGAGCCGTATACATIGGAATACGAAATCTGGTGTATGGAAATGTGC
GAAAAACCTTGCGCGGAATGGGAAACGACAAATIGCTATTCAGCTGTACTCTCGCCGGAT
AAAAAATGCACGGATTACTTGTAAAAAGAACCAATGAATATGAAATCAACCATGTIGAT
GTAGCATTTTCAGCTTTGTCATGGCAAGTCAGGTGAAGATGGATCCATACAGGCTCTGTTT
GAATGTCCGGTATCCCTTTTGTAGGCTGCGAATATTCAGGCTCAGCAATTTGTATGGAC
AATCGTTGACATACATCGTTGCGAAAAATGCTGGGATAGCTACTCCCGCTTTTGGGTT
ATTAATAAGATGATAGGCCGGTGGCAGCTACGTTTACCTATCCGTTTGTAGGCCG
GCGCGTTCAGGCTCATCCCTTCGGTGTGAAAGTCAATAGCGCGGACGAATGGACTAC
GCAATTGAATCGGCAGACAAATATGACAGCAAAATCTTAATTGAGCAGGCTGTTCGGGC
TGTGAGGTCGGTTGTGCGGTATGGGAACAGTGCCGCTTAGTTGTTGGCAGGTGGAC
CAATCAGGCTGCAGTACGGAATCTTTCGTATTCATCAGGAAGTCGAGCCGGAAGGCT
TCTGAAACGCGAGTTATAACCGTTCCCGCAGACCTTTTCAGCAGAGGCTAGCCGAGGATA
CAGGAACGCGCAAAATAATAAGCGCTCGGCTGTAGAGGCTAGCCCGTGTGGAT
ATGTTTTCACAGATAACGCGCGCATTTGTAACGAGTCAATACTCTGCCCGGTTTC
ACGTCATACAGTCGTTATCCCGGTATGATGGCCGCTGCAGGTATGCACTTCCCGAAGT
ATTGACCGCTTGATCGTATTAGCGTTAAGGGGTGATAAGCATGGAAATAGGATTTACTT
TTTGTAGATGAATAGTACACGGTGTTCGTTGGGACGCTAATATGCCACTTGGGATTAAT
TCACCGGAAACCGGTTGACGGTTATGAAGTAAATCGCATTTGTAGGGACATACGAGTTGG
CTGAATCGCTTTGAAGGCAAAAGAACTGGCTGCTACCCAGGGTACGGATGCTTCTAT
GGGACGGTTACCGTCTAAGCGTGCTGTAACTGTTTATGCAATGGGCTGCACAGCCGG
AAAAATACCTGACAAAGGAAGTTATATCCCAATATGACCGAAGTGAATGATTTCAA
AAGGATACGTGGCTTCAAAATCAAGCCATAGCCGCGGAGTGCATGTATCTACGCTT
ATCGATTAGACACGGGTGAGCTTGTAACCAATGGGAGCCGATTTGATTTTATGGATGAC

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FIG. 4E

GCTCTCATGCGGCAAAATGGAAATATCATGCAATGAAGCGCAAAATCGCAGACGTTTGC
GCTCCATCATGGAAACAGTGGGTTTGAGGCATATAGCCTCGAATGGTGGCACAATGTAT
TAAGAGACGAACCATACCCCAATAGCTATTTTGATTTCCCGTTAAATAAATTTTAACC
GTTGCACGGACAACATATATAGTAGATAGTATTCGGCAGGAACCCGACGTATGTAACTG
GTTCTTAGGGAATTTATATATAGTAGATAGTATTCGGCAGGAACCCGACGTATGTAACTG
GGTCATTATCTGCGTGCCTGCGCAAGATAGCCTGATATAAGACTGATCGCATAGAGG
GGTGGTATTTACACCGCCCATTTGTCAACAGGCAGTTCAGCCTCGTAAATTCAGCATGG
GTATCACCTTATGAAAATTCATCTACATTTGGTGATATAAGTAAATCCAGTAGGGCAATA
ATTGACTGTAAATTTACGGGGCAAAACGGCACAACTCAACACGAGATTGTGCCGTTTAAAGG
GGAAGATTCTAGAAATATTTTCATACCTCCAACTATATAGTTAAGGAGGAGACTGAAAAATG
AAGAAGTTGTTTTTTTATTTGTTATTTCTTAATATACCTTAGGTTATGACTACGTT
AATGAAGCAGCTGTTTCTCAGGAAAAGTCGAATTTCAAAATTAATGATCAAAATCCCAGAA
GAACATTTAGAAATAGTGGGACTTCTGAAAATACCCAGAGGAAAACAATACAGAGAGAA
CAGGTTTATCAAGGAATCTGCTATTAATCAATAGTAAATATCTGTCGCAAGAGTG
TGAAGTCAGATATCGTGAATTTATCTAAACATGACCGAATTAATAATGGATACGGGTTGC
TTGATAGTAATATTTATATGTCAAAAGAAATAGCACAAAATTTTCAGAGATGGTCAATG
ATGCTGTAAAGGGTGGCGTTAGTCAATTTATTAATAGTGGCTATCGAGACTTTGATG
AGCAAGGTGTGCTTTACCAAGAAATGGGGCTGAGTATGCTTACCAAGCAGGTTATAGTG
AGCATAAATTCAGGTTTATCAGTATGATGATGATGATGATGATGATGATGATGATGATG
CTGAAGGAAGTGGATAGAGAAAATGCTTGGAAATACGGGTTTCATTTACGTTATCCAG
AGGACAAAACAGAGTTAACAGGAATTC

LysLeuPhePheLeuLeuIleCys**ArgPheThrAsnArgIleLys**LeuLeuPhe
SerPheSerPheCysSerPheValArgAspLeuLeuThrValLeuAsnSerPhePheSer
AlaPheLeuPheAlaHisLeuLeuGluIleTyr**ProTyr**IleAlaSerPheGln
AAGCTTTTCTTTTTCATTTGTTAGAGATTTACTAACCGTATTAAATAGCTTCTTTTC
SerHisCysProCysPheProHisHisSerPheLysCysSerAspSerArgGlnTyrAsn
AlaIleAlaLeuAlaSerHisThrIleLeuSerSerValValIleAlaGlySerIleIle
ProLeuProLeuLeuProThrProPhePheGlnVal*****GlnAlaVal**Phe
AGCCATTGCCCTTGCTTCCCACACCATTCTTTCAAGTGTAGTAGCAGGCAGTATAAT
PheValPheSer**LysIleTyrAlaPheMetGln**MetAsnGlyIleThrIlePhe
LeuPhePheLeuArgLysSerMetHisSerCysSerArg**MetAlaSerProPheSer
CysPhePheLeuGluAsnLeuCysIleHisAlaValAspGluTrpHisHisPhePro
TTTGTTTTTTCTTAGAAATCTATGCATTTCATGCAGTAGATGAATGGCATCACCATTTC

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GlnSer**LeuMetLysValLeuLysCysHisSerIlePheThrGlnGlyLysSerTyr
LysAlaAsn*****ArgTyrLeuAsnValIleArgTyrSerLeuArgValLysValThr
LysLeuIleAspGluGlyThr**MetSerPheAspIleHisSerGly**LysLeuGln
CAAAGCTAATTGATGAAGGTACTTAAATGTCATTTCGATATTCAGGGTAAAGTTAC
. . . 200 . . .
LysValValPheThrSerAsnPhePheGlnMetIleProLysCysIlePheProLeuArg
LysSerTyrSerLeuArgIleSerPheLys**SerGlnSerValPheSerLeu**Gly
SerArgIleHisPheGluPheLeuSerAsnAspProLysValTyrPheProPheGluAsp
AAAGTCGTATTCACCTTCGAATTTCTTTCAAATGATCCCAAAGTGATTTTCCCTTTGAGG
. . . . . 300
```

FIG. 5B

FIG. 5C

IleMetIleLysArgGlyTyrThrAsnThrAsnLeuPheArgTyrIleLeuTyrAspArg
*****SerSerGluAspGlyLeuThrProIleCysPheAspIleTyrCysMetThrGlu
AsnAspGlnAlaArgMetAsp***HisGlnSerValSerIleTyrIleVal***ProAsn
ATAATGATCAAGCGAGGATGGACTAACACCAATCTGTTTCGATATATATTGTATGACCGA
IleTyrAspAlaPheAspMetSerValTrpProThrGlyIleProLysAsnSer***Leu
SerGlyMetLeuLeuIle***ValTyrGlyGlnProGlyTyrArgArgThrAlaAsn***
LeuGlyCysPhe***TyrGluCysMetAlaAsnArgAspThrGluGluGlnLeuIleGlu
ATCTGGGATGCTTTTGATATGAGTGATGGCCAAACCGGGATACCGAAGAACAGCTAATTG
AsnSerLysSer***ThrValPhePheProProSerLeuIleAsnTyrPhe***IlePro
ThrAlaAsnProLysArgPheSerSerLeuLeuArgLeuLeuThrIleSerLysSerArg
GlnGlnIleLeuAsnGlyPheLeuProSerPheAlaTyr***LeuPheLeuAsnProVal
AACAGCAAATCCTAAACGGTTTTCTTCCCTCCTTCGCTTATTAATACTATTCTAAATCCCG

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PheGlyLysSerGluValGlyProGlnTyrProPheIlePheArgAspLeuHisLysSer
LeuGluLysValLys**ValProSerIleHisSerSerSerGlyIleCysIleLysAla
TrpLysLys**SerArgSerProValSerIleHisLeuGlnGlyPheAla**LysPro
TTTGGAAAAGTAGGAGTCCAGTATCCATTTCATCTTCAGGGATTTCATATAAAGC
500
LeuSerLeuPheArgCysLysGlnPheSerThrSerArgAsnPheHisSerValSerPhe
CysLeuCysSerGlyValSerAsnSerLeuProLeuAlaIlePheIleGlnTyrHisSer
ValSerValProVal**AlaIleLeuTyrLeuSerGlnPheSerPheSerIleIlePro
CTGTCTCTGTTCCGGGTAAAGCAATTCTCTACCTCTCGCAATTTTCATTCAGTATCATTC
600

FIG. 5D

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FIG. 5E

HisPheCysIlePheAsnLeuValGlnLeuTyrIleAsnArgValTyrSerIleAsp
 IleSerValPheSerIleTyr**PheAsnTyrIleSerIleGluCysThrLeuLeuIle
 PheLeuTyrPheGlnPheIleSerSerIleIleTyrGln**SerValLeuTyr**Tyr
 CATTCTGTATTTTCAATTATTAGTTCAATTATATATCAATAGAGTGTACTCTATTGAT

 ThrAsnValValAsp*****AsnHisSer**GluArgLeuIleArgLeuValSerLys
 GlnMet*****ThrAspLysIleIleValLysSerValSer**AspLeuSerGlnLys
 LysCysSerArgLeuIleLysSer**LeuArgAlaSerHisLysThrCysLeuLysAsn
 ACAAATGTAGTAGACTGATAAAATCATAGTTAAGAGCGTCTCATAGACTTGTCTCAAAA
 700 .
 MetArg***TyrPheAlaGluAsnArgLeuTyrSerCysGlnPheAsp***ProGluSer
 ***GlyAspIleLeuArgLysIleGlyTyrIleArgValSerSerThrAsnGlnAsnPro
 GluValIlePheCysGlyLysSerValIlePheValSerValArgLeuThrArgIleLeu
 ATGAGGTGATATTTTGGGGAATAATCGGTTATATTCGTGTCAGTTCGACTAACCAGAAATCC

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PheLysThrIleSerAlaValGluArgAspArgAsnGlyTyrTyrIleLysArgLysPhe
SerArgGlnPheGlnGlnLeuAsnGluIleGlyMetAspIleIle***ArgGluSerPhe
GlnAspAsnPheSerSer***ThrArgSerGluTrpIleLeuTyrLysGluLysValSer
TTCAAGACAATTTCAGCAGTTGAACGAGATCGGAATGGATATTATATAAGAGAAAGTTT
800
GlnGluGlnGlnArgIleAlaSerAsnPheLysLysCys***ThrIleTyrArgLysMet
ArgSerAsnLysGlySerArgAlaThrSerLysSerValArgArgPheThrGlyArg***
GlyAlaThrLysAspArgGluGlnLeuGlnLysValLeuAspAspLeuGlnGluAspAsp
CAGGAGCAACAAGGATCGCGAGCAACTTCAAAAAGTGTTAGACGATTACAGGAAGATG
900

FIG. 5F

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FIG. 5G

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ThrSerPheMetLeuGlnThr**LeuGluSerLeuValValHisLysIleTyrLeuAsn
HisHisLeuCysTyrArgLeuAsnSerAsnHisSer**TyrThrArgSerIle**Ile
IleIleTyrValThrAspLeuThrArgIleThrArgSerThrGlnAspLeuPheGluLeu
ACATCATTATGTTACAGACTTAACTCGAATCACTCGTAGTACACAAGATCTATTGGAAT
. . . . .
***SerIleThrTyrGluIleLysArgGlnVal**AsnHis***LysIleHisGlyLeu
AsnArg**HisThrArg**LysGlyLysPheLysIleThrLysArgTyrMetAla**
IleAspAsnIleArgAspLysLysAlaSerLeuLysSerLeuLysAspThrTrpLeuAsp
TAATCGATAACATACGAGATAAAAGGCAAGTTTAAATCACTAAAAGATACATGGCTTG
. . . . . 1000
IleTyrGlnLysIleIleHisThrAlaAsnSer**LeuLeu**TrpLeuValLeuThr
PheIleArgArg***SerIleGlnProIleLeuAsnTyrCysAsnGlyTrpCys***Pro
LeuSerGluAspAsnProTyrSerGlnPheLeuIleThrValMetAlaGlyValAsnGln
ATTATCAGAAGATAATCCATACAGCCAATTCTTAATTACTGTAATGGCTGGTGTAAACC
. . . . .

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Asn***SerGluIleLeuPheGly***AspAsnValLysGlyLeuAsnTrpLeuArgLys
IleArgAlaArgSerTyrSerAspGluThr***ArgAsp***IleGly***GluArg
LeuGluArgAspLeuIleArgMetArgGlnArgGluGlyIleGluLeuAlaLysLysGlu
AATTAGAGCGAGATCTTATTCCGATGAGACACGTAAGGGATTGAATTGGCTAAGAAAG
1100
LysGluSerLeuLysValAsp***ArgSerIleIleLysIleThrGlnGlu***IleMet
ArgLysVal***ArgSerIleLysGluValSer***LysSerArgArgAsnGluLeuCys
GlyLysPheLysGlyArgLeuLysLysTyrHisLysAsnHisAlaGlyMetAsnTyrAla
AAGGAAAGTTAAAGGTCGATTAAAGAAGTATCATAAAAATCAGCAGGAATGAATTATG
1200

FIG. 5H

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FIG. 5I

ArgArgLysLeuTyrLysGluGlyAsnMetThrValAsnGlnIleCysGluIleThrAsn
 GlyGluSerTyrIleLysLysGluIle***Leu***IleLysPheValLysLeuLeuMet
 AlaLysAlaIle***ArgArgLysTyrAspCysLysSerAsnLeu***AsnTyr***Cys
 CGGXXAAAGCTATATAAGAGGAAATATGACTGTAAATCAAAATTTGTGAAATTACTAAT
 ValSerArgAlaSerLeuTyrArgLysLeuSerGluValAsnAsn***ProPheCysIle
 TyrLeuGlyLeuHisTyrThrGlyAsnTyrGlnLys***IleIleSerHisSerValPhe
 Ile***GlyPheIleIleGlnGluIleIleArgSerGlu***LeuAlaIleLeuTyrSer
 GTATCTAGGGCTTCATTATACAGGAAATTATCAGAAAGTGAATAATTAGCCATTCTGTATT
 1300 .
 ProLeuMetGlyAsnIlePheLysGluGluLysGluThrIleLysTyr***GlnProPro
 Arg***TrpAlaIlePheLeuLysLysLysArgLysLeu***AsnIleAsnSerLeuLeu
 AlaAsnGlyGlnTyrPhe***ArgArgLysGlyAsnTyrLysIleLeuThrAlaSer***
 CCGCTAATGGGCAATATTTTAAAGAGAAAGGAACTATAAAATATTAAACAGCCTCCT

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SerAspAlaGluLysPropheAspLysLysArgIleIleIleLeuArgAsnSer***Ser
AlaMetProLysSerProLeuIleLysLysGluSerSerSer***GluIleLeuSerHis
ArgCysArgLysAlaLeu****LysLysAsnHisHisLeuLysLysPheLeuValIle
AGCGATGCCGAAAGCCCTTTGATAAAAAAGAAATCATCATCTTAAGAAATTCTTAGTCA
1400
PheIleMet***MetLeuIleAsnSerAlaLeu***SerAspLysLeuLeuArgAlaAsn
LeuLeuCysLysCysLeu***IleArgProTyrAsnLeuIleAsnTyr***GlyGlnThr
TyrTyrValAsnAlaTyrLysPheGlyProIleIle*****IleIleLysGlyLysLeu
TTTATTATGTAAATGCTTATAAATTCGGCCCTATAATCTGATAATTATTAAAGGGCAAAC
1500

FIG. 5J

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LeuCysGluArgValIleThrMetSerAspLysIleLeuIleValAspAspGluHisGlu
TyrValLysGly*****Leu***AlaIleLysTyrLeuLeuTrpMetMetAsnMetLys
Met***LysGlyAspAsnTyrGluArg***AsnThrTyrCysGly*****Thr***Asn
TTATGTGAAAGGGTGATAACTATGAGCGGATAAAATACTTATTGTGGATGATGAACATGAA
IleAlaAspLeuValGluLeuTyrLeuLysAsnGluAsnTyrThrValPheLysTyrTyr
LeuProIleTrpLeuAsnTyrThr***LysThrArgIleIleArgPheSerAsnThrIle
CysArgPheGly***IleIleLeuLysLysArgGluLeuTyrGlyPheGlnIleLeuTyr
ATTGCCGATTGTGGTTGAATTATACTTAAAAACGAGAATTATACGGTTTTCAAATACTAT
1600
ThrAlaLysGluAlaLeuGluCysIleAspLysSerGluIleAspLeuAlaIleLeuAsp
ProProLysLysHisTrpAsnVal***ThrSerLeuArgLeuThrLeuProTyrTrpThr
ArgGlnArgSerIleGlyMetTyrArgGlnVal***Asp***ProCysHisIleGlyHis
ACCGCCAAAGAGCATTTGGAATGTATAGACAAGTCIGAGATTGACCTTGCCATATTGGAC

FIG. 5K

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IleMetLeuProGlyThrSerGlyLeuThrIleCysGlnLysIleArgAspLysHisThr
SerCysPheProAlaGlnAlaAlaLeuLeuSerValLysLys**GlyThrSerThrPro
HisAlaSerArgHisLysArgProTyrTyrLeuSerLysAsnLysGlyGlnAlaHisLeu
ATCATGCTTCCCGGCACAAGCGGCCCTTACTATCTGTCAAAAAATAAGGGACAAGCACACC
1700
TyrProIleIleMetLeuThrGlyLysAspThrGluValAspLysIleThrGlyLeuThr
IleArgLeuSerCys**ProGlyLysIleGlnArg**IleLysLeuGlnGly**Gln
SerAspTyrHisAlaAspArgGluArgTyrArgGlyArg**AsnTyrArgValAsnAsn
TATCCGATTATCATGCTGACCGGGAAGATACAGAGGTAGATAAAATTACAGGGTTAACA
1800

FIG. 5L

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IleGlyAlaAspAspTyrIleThrLysProPheArgProLeuGluLeuIleAlaArgVal
SerAlaArgMetIleIle**ArgSerProPheAlaHisTrpSer**LeuLeuGly***
ArgArgGly***LeuTyrAsnGluAlaLeuSerProThrGlyValAsnCysSerGlyLys
ATCGCGCGGATGATTATATAACGAAGCCCTTTCGCCCCACTGGAGTTAATTGCTCGGGTA
LysAlaGlnLeuArgArgTyrLysLysPheSerGlyValLysGluGlnAsnGluAsnVal
ArgProSerCysAlaAspThrLysAsnSerValGlu**ArgSerArgThrLysMetLeu
GlyProValAlaProIleGlnLysIleGlnTrpSerLysGlyAlaGluArgLysCysTyr
AAGGCCCAGTTGCGCGGATACAAAAATTTCAGTGGAGTAAAGGAGCAGAACGAAAAATGTT
IleValHisSerGlyLeuValIleAsnValAsnThrHisGluCysTyrLeuAsnGluLys
SerSerThrProAlaLeuSerLeuMetLeuThrProMetSerValIle**ThrArgSer
ArgProLeuArgProCysHis**Cys**HisPro**ValLeuSerGluArgGluAla
ATCGTCCACTCCGGCCTTGTCATTAATGTTAACACCCCATGAGTGTATCTGAACGAGAAG
.

FIG. 5M

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GlnLeuSerLeuThrProThrGluPheSerIleLeuArgIleLeuCysGluAsnLysGly
SerTyrProLeuLeuProProSerPheGlnTyrCysGluSerSerValLysThrArgGly
ValIleProTyrSerHisArgValPheAsnThrAlaAsnProLeu**LysGlnGlyGlu
CAGTTATCCCTTACTCCCACCGAGTTTTCATACTGCGAATCCTCTGTGAAACAAGGGG
. . . 2000 . . .
AsnValValSerSerGluLeuLeuPheHisGluIleTyrGlyAspGluTyrPheSerLys
MetTrpLeuAlaProSerCysTyrPheMetArgTyrGlyAlaThrAsnIleSerAlaArg
CysGly**LeuArgAlaAlaIleSer**AspMetGlyArgArgIlePheGlnGlnGlu
AATGTGGTTAGCTCCGAGCTGCTATTTTCATGAGATATGGGGCAGCAATATTTTCAGCAAG
. 2100

FIG. 5N

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SerAsnAsnThrIleThrValHisIleArgHisLeuArgGluLysMetAsnAspThrIle
AlaThrThrProSerProCysIleSerGlyIleCysAlaLysLys***ThrThrProLeu
GlnGlnHisHisArgAlaTyrProAlaPheAlaArgLysAsnGluArgHisHis***
AGCAACACACCATCACCGTGCATATCCGGCATTTCGGCGGAAAAAATGAACGACACCATT
AspAsnProLysTyrIleLysThrValTrpGlyValGlyTyrLysIleGluLys***Lys
IleIleArgAsnIle***LysArgTyrGlyGlyLeuValIleLysLeuLysAsnLysLys
SerGluIleTyrLysAsnGlyMetGlyGlyTrpLeuAsn***LysIleLysLys
GATAATCCGAAATATATAAAACGGTATGGGGGTTGGTTATAAAATTGAAAAATAAAAA
LysArgLeuPheGlnThrArgThrLysThrLeuHisValTyrArgCysAsnCysCysGly
AsnAspTyrSerLysLeuGluArgLysLeuTyrMetTyrIleValAlaIleValValVal
ThrThrIleProAsn***AsnGluAsnPheThrCysIleSerLeuGlnLeuLeuTrp***
AAACGACTATCCAAACTAGAACGAAACCTTACATGTATATCGTTGCAATTGTTGTGGT

FIG. 50

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SerAsnCysIleArgValValTyrSerPheAsnAspProArgGluThrTrpGlyLeuAsp
AlaIleValPheValLeuTyrIleArgSerMetIleArgGlyLysLeuGlyAspTrpIle
GlnLeuTyrSerCysCysIlePheValGln**SerGluGlyAsnLeuGlyIleGlySer
AGCAATTGTTGTTGTATATTTCGTTCAATGATCCGAGGGAACCTGGGGATTGGAT
2300
LeuLysTyrPheGlyLysGlnIle**LeuLysSerProGlyArgAspGluIleIleSer
LeuSerIleLeuGluAsnLysTyrAspLeuAsnHisLeuAspAlaMetLysLeuTyrGln
ValPheTrpLysThrAsnMetThr**IleThrTrpThrArgAsnTyrIleAsn
CTTAAGTATTTGGAAAACAAATATGACTTAAATCACCTGGACCGGATGAAATTATATCA
2400

FIG. 5P

FIG. 5Q

IlePheHisThrGluGlnTyrArgTyrLeuTyrLeuCysGlyAspCysHis**TyrSer
TyrSerIleArgAsnAsnIleAspIlePheIleTyrValAlaIleValIleSerIleLeu
IleProTyrGlyThrIle**IleSerLeuPheMetTrpArgLeuSerLeuValPheLeu
ATATTCCATACCGAACAAATATAGATATCTTTATTATGTGGCGATTGTCATTAGTATTCT
.
TyrSerMetSerArgHisAlaPheLysIleArgLysIleLeu**ArgAspLysTyrArg
IleLeuCysArgValMetLeuSerLysPheAlaLysTyrPheAspGluIleAsnThrGly
PheTyrValAlaSerCysPheGlnAsnSerGlnAsnThrLeuThrArg**IleProAla
TATTCTATGTGCGGTCATGCTTTCAAAATTTCGCAAAATACCTTTGACGAGATAAATACCGG
. 2500
His**CysThrTyrSerGluArgArg**ThrAsn**AlaPheCysGlyAsnGlyCys
IleAspValLeuIleGlnAsnGluAspLysGlnIleGluLeuSerAlaGluMetAspVal
LeuMetTyrLeuPheArgThrLysIleAsnLysLeuSerPheLeuArgLysTrpMetLeu
CATTGATGTACTTATTCAGAACGAGATAAACAAATTGAGCTTTCTGCGGAAATGGATGT
.

TyrGlyThrLysAlaGlnHisIleLysThrAspSerGlyLysAlaArgAlaGlyCysLys
MetGluGlnLysLeuAsnThrLeuLysArgThrLeuGluLysArgGluGlnAspAlaLys
TrpAsnLysSerSerThrHis**AsnGlyLeuTrpLysSerGluSerArgMetGlnSer
TATGGAAACAAAGCTCAACACATTAAACGGACTCTGGAAAAGCGAGCAGGATGCAAA
2600
AlaGlyArgThrLysLysLys**ArgCysTyrValLeuGlyAlaArgTyr**AsnAla
LeuAlaGluGlnArgLysAsnAspValValMetTyrLeuAlaHisAspIleLysThrPro
TrpProAsnLysGluLysMetThrLeuLeuCysThrTrpArgThrIleLeuLysArgPro
GCTGGCCGAACAAAGAAAAATGACGTTGTATGTACTTGGCGCAGCATATTAAACGCC
2700

FIG. 5R

FIG. 5S

ProTyrIleHisTyrArgLeuPheGluProAla***ArgGlySerArgHisAlaGlyArg
LeuThrSerIleIleGlyTyrLeuSerLeuLeuAspGluAlaProAspMetProValAsp
LeuHisProLeuSerValIle***AlaCysLeuThrArgLeuGlnThrCysArg***Ile
CCTTACATCCATTATCGGTTATTTGAGCCTGCTTGACGAGGCTCCAGACATGCCGGTAGA
SerLysGlyLysValCysAlaTyrHisValGlyGlnSerValSerThrArgThrAlaAsn
GlnLysAlaLysTyrValHisIleThrLeuAspLysAlaTyrArgLeuGluGlnLeuIle
LysArgGlnSerMetCysIleSerArgTrpThrLysArgIleAspSerAsnSer***Ser
TCAAAGGCAAGTATGTGCATATCAGTTGGACAAAGCGTATCGACTCGAACAGCTAAT
ArgArgValPhe***AspTyrThrVal***ProThrAsnAspAsnAlaAsnLysAsnAla
AspGluPhePheGluIleThrArgTyrAsnLeuGlnThrIleThrLeuThrLysThrHis
ThrSerPheLeuArgLeuHisGlyIleThrTyrLysArg***Arg***GlnLysArgThr
CGACGAGTTTTTTGAGATTACACGGTATAACCTACAAACGATAACGCTAACAAAAACGCA

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HisArgProIleLeuTyrAlaGlyAlaAspArg***IleLeuSerSerAlaPheArg
IleAspLeuTyrTyrMetLeuValGlnMetThrAspGluPheTyrProGlnLeuSerAla
ThrTyrThrIleCysTyrCysArgProMetAsnPheIleLeuSerPheProHis
CATAGACCTATACTATGCTGGTGCAGATGACCGGATGAATTTTATCCTCAGCTTTCCGC
. . . 2900 . . .
ThrTrpLysThrGlyGlyTyrSerArgProArgGlySerAspArgValArgArgPro***
HisGlyLysGlnAlaValIleHisAlaProGluAspLeuThrValSerGlyAspProAsp
MetGluAsnArgArgLeuPheThrProProArgIle***ProCysProAlaThrLeuIle
ACATGGAAAACAGCGGTTATTCACGCCCCGAGGATCTGACCGTGTCCGGCGACCCTGA
. . . 3000 . . .

FIG. 5T

FIG. 5U

ThrArgGluSerLeuGlnHisPheGluLysArgArgCysIleGln***Gly***
LysLeuAlaArgValPheAsnAsnIleLeuLysAsnAlaAlaTyrSerGluAspAsn
AsnSerArgGluSerLeuThrThrPhe***LysThrProLeuHisThrValArgIleThr
TAAACTCGCGAGAGTCTTTAACAACATTTTGAAAAACGCCGCTGCATACAGTGAGGATAA
GlnHisHis***HisTyrArgGlyProLeuArgGlyCysGlyValAsnArgIleGlnGlu
SerIleIleAspIleThrAlaGlyLeuSerGlyAspValValSerIleGluPheLysAsn
AlaSerLeuThrLeuProArgAlaSerProGlyMetTrpCysGlnSerAsnSerArgThr
CAGCATCATTGACATTACCGCGGGCCCTCTCCGGGGATGTGGTGTCAATCGAATTCAGAA
HisTrpLysHisProLysArg***AlaSerCysHisIle***LysValLeu***AlaGly
ThrGlySerIleProLysAspLysLeuAlaAlaIlePheGluLysPheTyrArgLeuAsp
LeuGluAlaSerGlnLysIleSer***LeuProTyrLeuLysSerSerIleGlyTrpThr
CACTGGAAGCATCCCAAAAGATAAGCTAGCTGCCATATTTGAAAAGTTCTATAGGCTGGA

GlnPheSerPhePheArgTyrGlyTrpArgGlyThrTrpIleGlyAspCysLysArgAsn
AsnSerArgSerSerAspThrGlyGlyAlaGlyLeuGlyLeuAlaIleAlaLysGluIle
IleLeuValLeuProIleArgValAlaArgAspLeuAspTrpArgLeuGlnLysLysLeu
CAATTCTCGTTCTTCGGATACGGGTGGCGGGGACTTGGATTGGCGATTGCAAAAGAAAT
3200
TyrCysSerAlaTrpArgAlaAspLeuArgGlyLysLeu*****LeuTyrAspVal***
IleValGlnHisGlyGlyGlnIleTyrAlaGluSerTyrAspAsnTyrThrThrPheArg
LeuPheSerMetGluGlyArgPheThrArgLysAlaMetIleThrIleArgArgLeuGly
TATTGTTTCAGCATGGAGGGCAGATTACGGGGAAGCTATGATAACTATACGACGTTTAG
3300

FIG. 5V

FIG. 5W

GlyArgAlaSerSerAspAlaArgLeuGly*****LysGluValLeuArgAspValTyr
ValGluLeuProAlaMetProAspLeuValAspLysArgArgSer**GluMetTyrIle
SerPheGlnArgCysGlnThrTrpLeuIleLysGlyGlyProLysArgCysIle
GGTAGAGCTTCCAGCGATGCCAGACTTGGTTGATAAAAGGAGGTCCTAAGAGATGTATAT
AsnPheLeuGlyLysSerGlnGlyTyrLeuTyrPhePheLeuGlyAsn**GlnPheAsn
IlePhe***GluAsnLeuLysValIlePheThrPheSer**GluIleAsnAsnLeuIle
PhePheArgLysIleSerArgLeuSerLeuLeuPheLeuArgLysLeuThrIle***Tyr
AATTTTtagGAAATCTCAAGGTTATCTTTTACTTTTCTTAGGAAATTAACAATTTAAT
IleLysLysArgLeuValLeuThrArg***Thr**TyrArgLysAsnGluProPheSer
LeuArgAsnGlySerPheLeuHisGlyArgLeuAsnThrValArgThrSerArgPheArg
GluThrAlaArgSerTyrThrValAspLeuIleProGluArgAlaValPheVal
ATTAAGAAACGGCTCGTTCTTACACGGTAGACTTAATACCGTAGAACGAGCCGTTTTCG

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PhePheArgGluArgPheAspLysIleThrIleGlyIleProvalLeuPheGlyAlaPhe
SerSerGluLysAspLeuThrArgLeuProLeuAlaSerProPheTyrLeuValProphe
LeuGlnArgLysIle***GlnAspTyrHisTrpHisProArgPheIleTrpCysLeuSer
TTCTTCAGAGAAAGATTTGACAAGATTACCATTTGGCATCCCCGTTTTATTGGTGCCCTTT
3500
HisArgLysGlyTrpSer***Leu***IleThrSerAlaLeuLeuPheMetAspValSer
ThrGluArgValGlyLeuAsnTyrGlu***HisArgHisTyrCysLeuTrpMet***Ala
GlnLysGlyLeuValLeuIleMetAsnAsnIleGlyIleThrValTyrGlyCysGluGln
CACAGAAAGGGTTGGTCTTAATTATGAATAACATCGGCATTACTGTTTATGGATGTGAGC
3600

FIG. 5X

ArgMetArgGlnMetHisSerMetLeuPheArgLeuAlaLeuAlaLeuTrpGlnArg***
Gly***GlyArgCysIleProCysSerPheAlaSerLeuTrpArgTyrGlyAsnAspAsn
AspGluAlaAspAlaPheHisAlaLeuSerProArgPheGlyValMetAlaThrIleIle
AGGATGAGGCAGATGCATTCCATGCTCTTTCCGCCTCGCTTTGGCGTTATGGCAACGATAA
LeuThrProThrCysArgAsnProThrProAsnProArgLeuSerIleAsnValSerVal
***ArgGlnArgValGlyIleGlnArgGlnIleArgAlaPheGlnSerMetTyrGlnCys
AsnAlaAsnValSerGluSerAsnAlaLysSerAlaProPheAsnGlnCysIleSerVal
TTAACGCCAACGGTGTGGGAATCCAACGCCAAATCCGGCGCTTCAATCAATGTATCAGTG
TrpAspIleAsnGlnArgPheProProLeuPhePheLeuArg***ArgGluProVal***
GlyThr***IleArgAspPheArgLeuTyrSerSerCysAlaGluGluSerArgCysGlu
GlyHisLysSerGluIleSerAlaSerIleLeuLeuAlaLeuLysArgAlaGlyValLys
TGGGACATAAATCAGAGATTCCGCCTCTATTCTTCTTGGCTGAAGAGAGCCGGTGTGA

FIG. 5Y

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AsnIlePheLeuProGluAlaSerAlaAlaIleIle**IleGlnLeuLeuLeuArgGlu
IleTyrPheTyrProLysHisArgLeuGlnSerTyrArgTyrAsnCys**GluAsn
TyrIleSerThrArgSerIleGlyCysAsnHisIleAspThrThrAlaAlaLysArgMet
AATATATTTCTACCCGAAGCATCGGCTGCAATCATATAGATACAACCTGCTAAGAGAA
3800
TrpAlaSerLeuSerThrMetTrpArgThrArgArgIleAlaLeuProIleIleLeu**
GlyHisHisCysArgGlnCysGlyValLeuAlaGly**ArgCysArgLeuTyrTyrAsp
GlyIleThrValAspAsnValAlaTyrSerProAspSerValAlaAspTyrThrMetMet
TGGGCATCACTGTCGACAAATGTGGCGTACTCGCCGGATAGCGTTGCCGATTACTATGA
3900

FIG. 5Z

FIG. 5AA

Cys***PheLeuTrpGlnTyrAlaThr***AsnArgLeuCysAlaLeuTrpLysAsnMet
AlaAsnSerTyrGlySerThrGlnArgLysIleAspCysAlaLeuCysGlyLysThr***
LeuIleLeuMetAlaValArgAsnValLysSerIleValArgSerValGluLysHisAsp
TGCTAATTCTTATGGCAGTACGCAACGTAAATCGATTGTGCGCTCTGTGGAACAAACATG
IleSerGlyTrpThrAlaThrValAlaArgTyrSerAlaThr***GlnLeuValTrpTrp
PheGlnValGlyGlnArgProTrpGlnGlyThrGlnArgHisAspSerTrpCysGlyGly
PheArgLeuAspSerAspArgGlyLysValLeuSerAspMetThrValGlyValValGly
ATTTTCAGGTTGGACAGCGACCGTGGCAAGGTACTCAGCGACAIGACAGTTGGTGGTGG
GluArgAlaArg***AlaLysArgLeuLeuSerGlyCysGluAspLeuAspValLysCys
AsnGlyProAspArgGlnSerGlyTyr***AlaAlaAlaArgIleTrpMet***SerVal
ThrGlyGlnIleGlyLysAlaValIleGluArgLeuArgGlyPheGlyCysLysValLeu
GAACGGCCAGATAGGCAAGCGGTTATTGAGCGGCTGCGAGGATTTGGATGTAAAGTGT

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TriLeuIleValAlaAlaGluVal**Arg**ThrMetTyrArgLeuMetSerCysCys
GlyLeu***SerGlnProLysTyrArgGlyLysLeuCysThrVal*****ValAlaAla
AlaTyrSerArgSerArgSerIleGluValAsnTyrValProPheAspGluLeuLeuGln
TGGCTTATAGTCGCAGCCGAAAGTATAGAGGTAACACTATGTACCGTTTGATGAGTTGCTGC
.      4100      .      .      .      .
LysIleAlaIleSerLeuArgPheMetCysArgSerIleArgIleArgThrIleLeuSer
Lys***ArgTyrArgTyrAlaSerCysAlaAlaGlnTyrGlyTyrAlaLeuTyrTyrGln
AsnSerAspIleValThrLeuHisValProLeuAsnThrAspThrHisTyrIleIleSer
AAATAGCGATATCGTTACGCTTCATGTGCGCGCTCAATACGGATACGCACTATATATCA
.      .      .      .      .      .      4200

```

FIG. 5BB

FIG. 5CC

AlaThrAsnLysTyrArgGlu**SerLysGluHisPheLeuSerIleLeuGlyAlaVal
 ProArgThrAsnThrGluAsnGluAlaArgSerIleSerTyrGlnTyrTrpAlaArgSer
 HisGluGlnIleGlnArgMetLysGlnGlyAlaPheLeuIleAsnThrGlyArgGlyPro
 GCCACGAAACAATACAGAGAAATGAAGCAAGGAGCAATTTCTTAICAATACTGGCGCGGTC

 HisLeu**IleProMetSerTrpLeuLysHis**LysThrGlyAsnTrpAlaValPro
 ThrCysArgTyrLeu**ValGly**SerIleArgLysArgGluThrGlyArgCysArg
 LeuValAspThrTyrGluLeuValLysAlaLeuGluAsnGlyLysLeuGlyGlyAlaAla
 CACTTGTAGATACCTATGAGTTGGTTAAAGCATTAGAAAACGGGAAACTGGGCGGTGCCG
 4300 . . .
 HisTrpMetTyrTrpLysGluArgLysSerPheSerThrLeuIleAlaProLysAsnGln
 IleGlyCysIleGlyArgArgGlyArgValPheLeuLeu**LeuHisProLysThrAsn
 LeuAspValLeuGluGlyGluGluPhePheTyrSerAspCysThrGlnLysProIle
 CATTGGATGTATTGGAAGGAGAGAGAGAGTTTTTCTACTCTGATTGCACCCAAAACCAA

LeuIleIleAsnPheTyrLeuAsnPheLysGluCysLeuThr*****SerHisArgIle
*****SerIlePheThr***ThrSerLysAsnAla***ArgAspAsnHisThrAlaTyr
AspAsnGlnPheLeuLeuLysLeuGlnArgMetProAsnValIleIleThrProHisThr
TTGATAATCAATTTTACTTAACTTCAAGAATGCCCTAACGIGATAATCACACCGCATA
4400
ArgProIleIleProSerLysArgCysValIleProLeuLysLysProLeuLysThrVal
GlyLeuLeuTyrArgAlaSerValAla***TyrArg***LysAsnHis***LysLeuPhe
AlaTyrTyrThrGluGlnAlaLeuArgAspThrValGluLysThrIleLysAsnCysLeu
CGGCCTATTATACCGAGCAAGCGTTGCGTGATACCGTTGAAAAAACCATTAATAACTGTT
4500

FIG. 5DD

FIG. 5EE

TrpIleLeuLysGlyAspArgSerMetAsnArgIleLysValAlaIleLeuPheGlyGly
GlyPhe***LysGluThrGlyAla***IleGlu***LysLeuGlnTyrCysLeuGlyVal
AspPheGluArgArgGlnGluHisGlu***AsnLysSerCysAsnThrValTrpGlyLeu
TGGATTTTGAAGGAGACAGGAGCATGAATAGAAATAAAGTTGCAATACTGTTTGGGGGT
CysSerGluGluHisAspValSerValLysSerAlaIleGluIleAlaAlaAsnIleAsn
AlaGlnArgSerMetThrTyrArg***AsnLeuGln***Arg***ProLeuThrLeuIle
LeuArgGlyAla***ArgIleGlyLysIleCysAsnArgAspSerArg***His*****
TGCTCAGAGGAGCATGACGTATCGGTAAATCTGCAATAGAGATAGCCGCTAACATTAAAT
LysGluLysTyrGluProLeuTyrIleGlyIleThrLysSerGlyValTrpLysMetCys
LysLysAsnThrSerArgTyrThrLeuGluLeuArgAsnLeuValTyrGlyLysCysAla
ArgLysIleArgAlaValIleHisTrpAsnTyrGluIleTrpCysMetGluAsnValArg
AAAGAAAAATACGAGCCGTTATACATTGGAATTACGAAATCTGGTGTATGGAAAAATGTGC

GluLysProCysAlaGluTrpGluAsnAspAsnCysTyrSerAlaValLeuSerProAsp
LysAsnLeuAlaArgAsnGlyLysThrThrIleAlaIleGlnLeuTyrSerArgArgIle
LysThrLeuArgGlyMetGlyLysArgGlnLeuLeuPheSerCysThrLeuAlaGly***
GAAAAACCTTGCGCGGAATGGGAAAACGACAATTGCTATTTCAGCTGTACTCTCGCCGGAT
. . . 4700 . . .
LysLysMetHisGlyLeuLeuValLysLysAsnHisGluTyrGluIleAsnHisValAsp
LysLysCysThrAspTyrLeuLeuLysArgThrMetAsnMetLysSerThrMetLeuMet
LysAsnAlaArgIleThrCys***LysGluPro***Ile***AsnGlnProCys***Cys
AAAAAATGCACGGATTACTTGTAAAAAGAACCATGAATATGAAATCAACCATGTTGAT
. 4800

FIG. 5FF

FIG. 5GG

ValAlaPheSerAlaLeuHisGlyLysSerGlyGluAspGlySerIleGlnGlyLeuPhe
 ***HisPheGlnLeuCysMetAlaSerGlnValLysMetAspProTyrLysValCysLeu
 SerIlePheSerPheAlaTrpGlnValArg**ArgTrpIleHisThrArgSerVal***
 GTAGCATTTTCAGCTTTGCATGGCAAGTCAGGTGAAGATGGATCCATACAAGGTCTGTTT

 GluLeuSerGlyIleProPheValGlyCysAspIleGlnSerSerAlaIleCysMetAsp
 AsnCysProValSerLeuLeu**AlaAlaIlePheLysAlaGlnGlnPheValTrpThr
 IleValArgTyrProPheCysArgLeuArgTyrSerLysLeuSerAsnLeuTyrGlyGln
 GAATTGTCGGGTATCCCTTTTGTAGGCTGCGATATTCAAAGCTCAGCAATTTGTATGGAC
 4900
 LysSerLeuThrTyrIleValAlaLysAsnAlaGlyIleAlaThrProAlaPheTrpVal
 AsnArg**HisThrSerLeuArgLysMetLeuGly**LeuLeuProPheGlyLeu
 IleValAspIleHisArgCysGluLysCysTrpAspSerTyrSerArgLeuLeuGlyTyr
 AAATCGTTGACATACGTTGCGAAAAATGCTGGGATAGCTACTCCCGCCTTTTGGGTT

IleAsnLysAspAspArgProValAlaAlaThrPheThrTyrProValPheValLysPro
LeuIleLysMetIleGlyArgTrpGlnLeuArgLeuProIleLeuPheLeuLeuSerArg
*****Arg*****AlaGlyGlySerTyrValTyrLeuSerCysPheCys**AlaGly
ATTAATAAGATGATAGGCCGGTGGCAGCTACGTTTACCTATCCTGTTTTTGTAAAGCCG
5000
AlaArgSerGlySerSerPheGlyValLysLysValAsnSerAlaAspGluLeuAspTyr
ArgValGlnAlaHisProSerVal**LysLysSerIleAlaArgThrAsnTrpThrThr
AlaPheArgLeuIleLeuArgCysGluLysSerGln**ArgGlyArgIleGlyLeuArg
GCGCGTTCAGGCTCATCCTTCGGTGTGAAAAAAGTCAATAGCGCGGACGAAATTGGACTAC
5100

FIG. 5HH

AlaIleGluSerAlaArgGlnTyrAspSerLysIleLeuIleGluGlnAlaValSerGly
GlnLeuAsnArgGlnAspAsnMetThrAlaLysSer***LeuSerArgLeuPheArgAla
Asn***IleGlyLysThrIle**GlnGlnAsnLeuAsn***AlaGlyCysPheGlyLeu
GCAATTGAATCGGCAAGACAAATATGACAGCAAAATCTTAATTGAGCAGGCTGTTTCGGGC
CysGluValGlyCysAlaValLeuGlyAsnSerAlaAlaLeuValValGlyGluValAsp
ValArgSerValValArgTyrTrpGluThrValProArg***LeuLeuAlaArgTrpThr
***GlyArgLeuCysGlyIleGlyLysGlnCysArgValSerCysTrpArgGlyGlyPro
TGTGAGGTCGGTTGTGCGGTATTGGGAAACAGTGCCCGGTAGTTGTTGGCGAGGTGGAC
GlnIleArgLeuGlnTyrGlyIlePheArgIleHisGlnGluValGluProGluLysGly
LysSerGlyCysSerThrGluSerPheValPheIleArgLysSerSerArgLysLysAla
AsnGlnAlaAlaValArgAsnLeuSerTyrSerSerGlySerArgAlaGlyLysArgLeu
CAAATCAGGCTGCAGTACGGAATCTTTCGTATTTCATCAGGAAGTCGAGCCGGAAGG

FIG. 5II

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SerGluAsnAlaValIleThrValProAlaAspLeuSerAlaGluArgGlyArgIle
LeuLysThrGlnLeu**ProPheProGlnThrPheGlnGlnArgSerGluAspGlyTyr
**LysArgSerTyrAsnArgSerArgArgPropheSerArgGlyAlaArgThrAspThr
TCTGAAACGCAGTTATAACCGTTCCCGCAGACCTTTCAGCAGAGGAGCGAGCGGATA
5300
GlnGluThrAlaLysLysIleTyrLysAlaLeuGlyCysArgGlyLeuAlaArgvalAsp
ArgLysArgGlnLysLysTyrIleLysArgSerAlaValGluVal**ProValTrpIle
GlyAsnGlyLysLysAsnIle**SerAlaArgLeu**ArgSerSerProCysGlyTyr
CAGGAAACGGCAAAAAATATATAAAGCGCTCGGCTGTAGAGGICTAGCCCGTGTGGAT
5400

FIG. 5JJ

FIG. 5KK

MetPheLeuGlnAspAsnGlyArgIleValLeuAsnGluValAsnThrLeuProGlyPhe
CysPheTyrLysIleThrAlaAlaLeuTyr**ThrLysSerIleLeuCysProValSer
ValPheThrArg**ArgProHisCysThrGluArgSerGlnTyrSerAlaArgPheHis
ATGTTTTTACAAGATAACGGCCGCATTGTACTGAACGAAGTCAATACTCTGCCCGGTTTC
ThrSerTyrSerArgTyrProArgMetMetAlaAlaGlyIleAlaLeuProGluLeu
ArgHisThrValValIleProVal**TrpProLeuGlnValLeuHisPheProAsn***
ValIleGlnSerLeuSerProTyrAspGlyArgCysArgTyrCysThrSerArgThrAsp
ACGTCATACAGTCGTTATCCCGGTATGATGGCCGCTGCAGGTATTGCACTTCCCGAACTG
IleAspArgLeuIleValLeuAlaLeuLysGly*****AlaTrpLys**AspLeuLeu
LeuThrAla***SerTyr***Arg**ArgGlyAspLysHisGlyAsnArgIleTyrPhe
***ProLeuAspArgIleSerValLysGlyValIleSerMetGluIleGlyPheThrPhe
ATTGACCGCTTGATCGTATTAGCGTTAAAGGGGTGATAAGCATGGAATAGGATTTACTT

Phe***MetLys***TyrThrValPheValGlyThrLeuAsnMetProLeuGlyIleIle
PheArg***AsnSerThrArgCysSerLeuGlyArg***IleCysHisLeuGly***Phe
LeuAspGluIleValHisGlyValArgTIPAspAlaLysTyrAlaThrTrpAspAsnPhe
TTTTAGATGAAATAGTACACGGTGTTCGTTGGGACGCTAAATATGCCACTTGGGATAATT
5600
SerProGluAsnArgLeuThrValMetLys***IleAlaLeu***GlyHisThrSerTrp
HisArgLysThrGly***ArgLeu***SerLysSerHisCysArgAspIleArgValGly
ThrGlyLysProValAspGlyTyrGluValAsnArgIleValGlyThrTyrGluLeuAla
TCACCGGAAACCGGTTGACGGTTATGAAGTAAATCGCATTTGTAGGGACATACGAGTTGG
5700

FIG. 5LL

FIG. 5MM

LeuAsnArgPhe**ArgGlnLysAsnTrpLeuLeuProLysGlyThrAspCysPheTyr
 ***IleAlaPheGluGlyLysArgThrGlyCysTyrProArgValArgIleAlaSerMet
 GluSerLeuLeuLysAlaLysGluLeuAlaAlaThrGlnGlyTyrGlyLeuLeuTrp
 CTGAATCGCTTTTGAAGGCAAAAGAACTGGCTGCTACCCAAAGGTACGGATTGCTTCTAT

 GlyThrValThrValLeuSerValLeu**ThrValLeuCysAsnGlyLeuHisSerArg
 GlyArgLeuProSer**AlaCysCysLysLeuPheTyrAlaMetGlyCysThrAlaGly
 AspGlyTyrArgProLysArgAlaValAsnCysPheMetGlnTrpAlaAlaGlnProGlu
 GGGACGGTTACCGTCCTAAGCGTGCTGTAAACTGTTTTTATGCAATGGGCTGCACAGCCGG
 5800 . . .
 LysIleThr**GlnArgLysValIleIleProIleLeuThrGluLeuArg**PheGln
 Lys**ProAspLysGlyLysLeuLeuSerGlnTyr**ProAsn**AspAspPheLys
 AsnAsnLeuThrLysGluSerTyrTyrProAsnIleAspArgThrGluMetIleSerLys
 AAAATAACCTGACAAAGGAAAGTTATTATCCCAATATTGACCGAACTGAGATGATTTCAA

LysAspThrTrpLeuGlnAsnGlnAlaIleAlaAlaValProLeuIleLeuArgPhe
ArgIleArgGlyPheLysIleLysPro**ProArgGlnCysHis**SerTyrAlaLeu
GlyTyrValAlaSerLysSerSerHisSerArgGlySerAlaIleAspLeuThrLeuTyr
AAGGATACGTGGCTTCAAAATCAAGCCATAGCCCGCGGCAGTGCATTGATCTTACGCCTT
5900
IleAsp**ThrArgValSerLeuTyrGlnTrpGlyAlaAspLeuIleLeuTrpMetAsn
SerIleArgHisGly**AlaCysThrAsnGlyGluProIle**PheTyrGly**Thr
ArgLeuAspThrGlyGluLeuValProMetGlySerArgPheAspPheMetAspGluArg
ATCGATTAGACACGGGTGAGCTTGTAACCAATGGGAGCCGATTGATTTTATGGATGAAC
6000

FIG. 5NN

FIG. 500

AlaLeuIleMetArgGlnMetGluTyrHisAlaMetLysArgLysIleAlaAspValCys
LeuSerSerCysGlyLysTrpAsnIleMetGln***SerAlaLysSerGlnThrPheAla
SerHisHisAlaAlaAsnGlyIleSerCysAsnGluAlaGlnAsnArgArgArgLeuArg
GCTCTCATCGGGCAAATGGAATATCATGCAATGAAGCGCAAAATCGCAGACGTTTGC
AlaProSerTrpLysThrValGlyLeuLysHisIleAlaSerAsnGlyGlyThrMetTyr
LeuHisHisGlyLysGlnTrpVal***SerIle***ProArgMetValAlaLeuCysIle
SerIleMetGluAsnSerGlyPheGluAlaTyrSerLeuGluTrpTrpHisTyrValLeu
GCTCCATCATGGAAACACAGTGGGTTTGAAGCATATAGCCCTCGAATGGTGGCAGTATGTAT
***GluThrAsnHisThrProIleAlaIleLeuIleSerProLeuAsnLysLeuLeuThr
LysArgArgThrIleProGln***LeuPhe***PheProArg***IleAsnPhe***Pro
ArgAspGluProTyrProAsnSerTyrPheAspPheProValLys***ThrPheAsnArg
TAAGAGACGAACCATACCCCAATAGCTATTTTGATTTCGCCGTTAAATAAACTTTTAACC

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ValAlaArgThrAsnTyrIleSer***LeuPheArgGlnGluThrArgArgMet***Leu
LeuHisGlyGlnThrIle***AlaAsnSerPheGlyArgLysProAspValCysAsnTrp
CysThrAspLysLeuTyrLysLeuThrLeuSerAlaGlyAsnProThrTyrValThrGly
GTTGCACGGACAAACTATATAAGCTAACTCTTTCGGCAGGAAACCCGACGTATGTAAC TG
6200
ValLeuArgGluPheIleTyrSerArg***Tyr***ArgCysLysAlaGluArgTyrCys
PheLeuGlyAsnLeuTyrIleValAspSerIleGluAspValArgGlnSerAspIleAla
Ser***GlyIleTyrIle*****IleValLeuLysMet***GlyArgAlaIleLeuArg
GTTCTTAGGGAATTATATATAGTAGATAGTATTGAAGATGTAAAGCAGAGCGGATATTGC
6300

FIG. 5PP

GlyHisTyrLeuArgAlaLeuArgGlnAspSerLeuIleIleIrgLeuIleAla***Arg
ValIleIleCysValArgCysGlyLysIleAla*****Asp***SerHisArgGly
SerLeuSerAlaCysAlaAlaAlaArg**ProAspAsnLysThrAspArgIleGluGly
GGTCATTATCTGCGTGGCTGGCGCAAGATAGCCTGATAATAAGACTGATCGCATAGAGG
GlyGlyIleSerHisArgProLeuSerThrGlySerSerAlaSerLeuAsnSerAlaTrp
ValValPheHisThrAlaHisCysGlnGlnAlaValGlnPrcArg***IleGlnHisGly
TrpTyrPheThrProIleValAsnArgGlnPheSerLeuValLysPheSerMetGly
GGTGGTATTTCACACCGCCCATTTGTCAACAGGCAGTTCAGCCCGTTAAATTCAGCATGG
ValSerLeuMetLysIleHisLeuHisTrp*****IleGln***GlyGluIle
TyrHisLeu***LysPheIleTyrIleGlyAspAsnSerLysSerSerArgAlaLys***
IleThrTyrGluAsnSerSerThrLeuValIleIleValAsnProValGlyArgAsnAsn
GTATCACTTATGAAAATTTCATCTACATTGGTGATAAAGTAAATCCAGTAGGCGGAAATA

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IleAspCysAsnLeuArgGlyLysThrAlaGlnSerGlnThrArgLeuCysArgLeuArg
LeuThrValIleTyrGlyAlaLysArgHisAsnLeuLysArgAspCysAlaVal***Gly
LeuPheThrGlyGlnAsnGlyThrIleSerAsnGluIleValProPheLysGly
ATTGACTGTAATTACGGGGCAAAACGGCACAAATCTCAAACGAGATTGTGCCGTTTAAGG
6500
GlyArgPhe***LysTyrPheIleLeuProThrIle***LeuArgArgArgLeuLysMet
GluAspSerArgAsnIleSerTyrPheGlnLeuTyrSer***GlyGlyAsp***Lys***
LysIleLeuGluIlePheHisThrSerAsnTyrIleValLysGluGluThrGluAsnGlu
GGAAGATTCTAGAAATATTTTCATACTTCCAACTATATAGTTAAGGAGGAGACTGAAATG
6600

FIG. 5RR

FIG.5SS

LysLysLeuPhePheLeuLeuLeuLeuPheLeuIleTyrLeuGlyTyrAspTyrVal
 ArgSerCysPhePheTyrCysTyrCysTyrSer***TyrThr***ValMetThrThrLeu
 GluValValPhePheIleValIleValIleLeuAsnIleLeuArgLeu***LeuArg***
 AAGAAGTTGTTTTTTTATTGTTATTGTTATTCTTAATATACTTAGGTTATGACTACGTT

 AsnGluAlaLeuPheSerGlnGluLysValGluPheGlnAsnTyrAspGlnAsnProLys
 MetLysHisCysPheLeuArgLysLysSerAsnPheLysIleMetIleLysIleProLys
 SerThrValPheSerGlyLysSerArgIleSerLysLeuSerLysSerGlnArg
 AATGAAGCACTGTTTTCTCAGGAAAAAGTCGAATTTCAAATTTATGATCAAAATCCCCAAA
 6700
 GluHisLeuGluAsnSerGlyThrSerGluAsnThrGlnGluLysThrIleThrGluGlu
 AsnIle***LysIleValGlyLeuLeuLysIleProLysArgLysGlnLeuGlnLysAsn
 ThrPheArgLys***TrpAspPhe***LysTyrProArgGluAsnAsnTyrArgArgThr
 GAACATTTAGAAAAATAGTGGGACTTCTGAAAAATACCCAAGAGAAAAACAATTACAGAAGAA

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GlnValTyrGlnGlyAsnLeuLeuIleAsnSerLysTyrProValArgGlnGluVal
ArgPheIleLysGluIleCysTyr***SerIleValAsnIleLeuPheAlaLysLysCys
GlyLeuSerArgLysSerAlaIleAsnGln*****IleSerCysSerProArgSerVal
CAGGTTTATCAAGGAAATCTGCTATTATTAATCAATAGTAATAATCCTGTTCCCAAGAAAGTG
6800
SerGlnIleSerIleTyrLeuAsnMetThrAsn*****MetAspThrGlyCys
GluValArgTyrArgGluPheIle***Thr***ArgIleAsnLysTrpIleArgValAla
LysSerAspIleValAsnLeuSerLysHisAspGluLeuIleAsnGlyTyrGlyLeuLeu
TGAAGTCAGATATCGTGAAATTTATCTAAACATGACGAATTAATAATGGATACGGGTTGC
6900

FIG. 5TT

LeuIleValIlePheIleCysGlnLysLys**HisLysAsnPheGlnArgTrpSerMet
*****TyrLeuTyrValLysArgAsnSerThrLysIlePheArgAspGlyGln***
AspSerAsnIleTyrMetSerLysGluIleAlaGlnLysFheSerGluMetValAsnAsp
TTGATAGTAATATTTATATGTCAAAAGAAATAGCACAAAATTTTCAGAGATGGTCAATG
MetLeu***ArgValAlaLeuValIleLeuLeuLeuIleValAlaIleGluThrLeuMet
CysCysLysGlyTrpArg***SerPheTyrTyr*****TrpLeuSerArgLeu*****
AlaValLysGlyGlyValSerHisPheIleIleAsnSerGlyTyrArgAspPheAspGlu
ATGCTGTAAAGGGTGGCTTAGTCATTTTATTATTATTAATAGTGGCTATCGAGACTTTGATG
SerLysValCysPheThrLysLysTrpGlyLeuSerMetPrctyrGlnGlnValIleVal
AlaLysCysAlaLeuProArgAsnGlyGly***ValCysLeuThrSerArgLeu*****
GlnSerValLeuTyrGlnGluMetGlyAlaGluTyrAlaLeuProAlaGlyTyrSerGlu
AGCAAAGTGTGCTTTACCAAGAAATGGGGGCTGAGTATGCCTTACCAGCAGGTTATAGTG

FIG. 5UU

SerIleIleGlnValTyrHis***Met***AspGlnAla***ArgLysTrpAsnGluPro
Ala***PheArgPheIleThrArgCysArgIleLysLeuAspGluAsnGlyThrSerPro
HisAsnSerGlyLeuSerLeuAspValGlySerSerLeuThrLysMetGluArgAlaPro
AGCATAATTCAGGTTTATCACTAGATGTAGGATCAAGCTTGACGAAAAATGGACGAGCCC
7100
LeuLysGluSerGly***LysLysMetLeuGlyAsnThrGlySerPheTyrValIleGln
***ArgLysValAspArgArgLysCysLeuGluIleArgValHisPheThrLeuSerArg
GluGlyLysTrpIleGluGluAsnAlaTrpLysTyrGlyPheIleLeuArgTyrProGlu
CTGAAGGAAAGTGGATAGAAGAAAATGCTTGGAATACGGGTTCATTTTACGTTATCCAG
7200

FIG. 5V

ArgThrLysGlnSer***GlnGluPhe
GlyGlnAsnArgValAsnArgAsnSer
AspLysThrGluLeuThrGlyIleGln
AGGACAAAACAGAGTTAACAGGAATTC

. . 7227

FIG. 5WW

FIG. 6A

EcoRV

GATATCGTTACGCTTCAIGTCCGCTCAATACGGATACGCACTATATTATCAGCCACGAACAAA 64
TACAGAGAAATGAAGCAAGGAGCATTTTCTTATCAATACTGGCGCGGTCCACTGTAGATACCTATGAGTTGGTTAAGCATTAGAAAAACGG 155
GAAACTGGCGGTGCCGCATTGGATGTATTGGAAGGAGAGAGAGTTTTTCTACTCTGATTGCACCCAAAAACCAATTGATAATCAATTT 246
TTACTTAAACTTCAAAGAATGCCTAACGTGATAATCACACGCATACGGCCTATTATACCGAGCAAGCGTTGCGTGATACCGTTGAAAAAAA 337
HaeIII
RBS ▼MET ASN ARG ILE LYS VAL ALA ILE LEU PHE GLY GLY CYS
CCATTAAAACTGTTGGATTTTGAAGGAGACAGGAGC ATG AAT AGA ATA AAA GTT GCA ATA CTG TTT GGG GGT TGC 415
NlaIII
SER GLU GLU HIS ASP VAL SER VAL LYS SER ALA ILE GLU ILE ALA ALA ASN ILE ASN LYS GLU LYS TYR
TCA GAG GAG AAT GAC GTA TCG GTA AAA TCT GCA ATA GAG ATA GCC GCT AAC ATT AAT AAA GAA AAA TAC 484
GLU PRO LEU TYR ILE GLY ILE THR LYS SER GLY VAL TRP LYS MET CYS GLU LYS PRO CYS ALA GLU TRP
GAG CCG TTA TAC ATT GGA ATT ACG AAA TCT GGT GTA TGG AAA ATG TGC GAA AAA CCT TGC GCG GAA TGG 553
GLU ASN ASP ASN CYS TYR SER ALA VAL LEU SER PRO ASP LYS LYS MET HIS GLY LEU LEU VAL LYS LYS
GAA AAC GAC AAT TGC TAT TCA GCT GTA CTC TCG CCG GAT AAA AAA ATG CAC GGA TTA CTT GTT AAA AAG 622
ASN HIS GLU TYR GLU ILE ASN HIS VAL ASP VAL ALA PHE SER ALA LEU HIS GLY LYS SER GLY GLU ASP
AAC CAT GAA TAT GAA ATC AAC CAT GTT GAT GTA GCA TTT TCA GCT TTG CAT GGC AAG TCA GGT GAA GAT 691
GLY SER ILE GLN GLY LEU PHE GLU LEU SER GLY ILE PRO PHE VAL GLY CYS ASP ILE GLN SER SER ALA
GGA TCC ATA CAA GGT CTG TTT GAA TTG TCC GGT ATC CCT TTT GTA GGC TGC GAT ATT CAA AGC TCA GCA 760
ILE CYS MET ASP LYS SER LEU THR TYR ILE VAL ALA LYS ASN ALA GLY ILE ALA THR PRO ALA PHE TRP
ATT TGT ATG GAC AAA TCG TTG ACA TAC ATC GTT GCG AAA AAT GCT GGG ATA GCT ACT CCC GCC TTT TGG 829
VAL ILE ASN LYS ASP ARG PRO VAL ALA ALA THR PHE THR TYR PRO VAL PHE VAL LYS PRO ALA ARG
GTT ATT AAT AAA GAT GAT AGG CCG GTG GCA GCT ACG TTT ACC TAT CCT GTT TTT GTT AAG CCG GCG CGT 898

FIG. 6B

USSN 09/357,

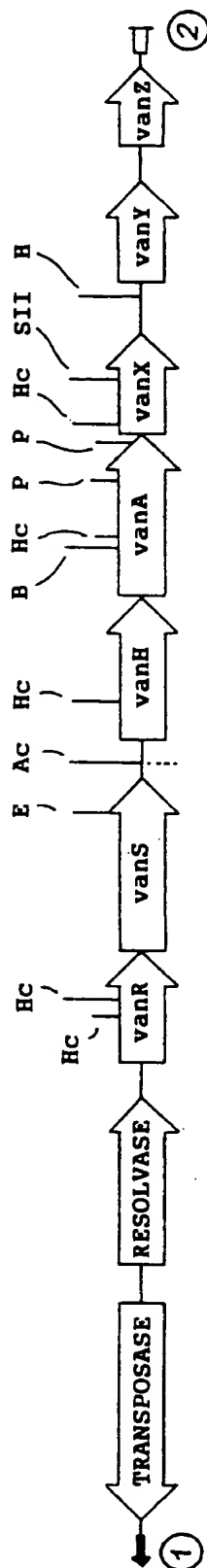


FIG. 7A

USSN 09/357,375

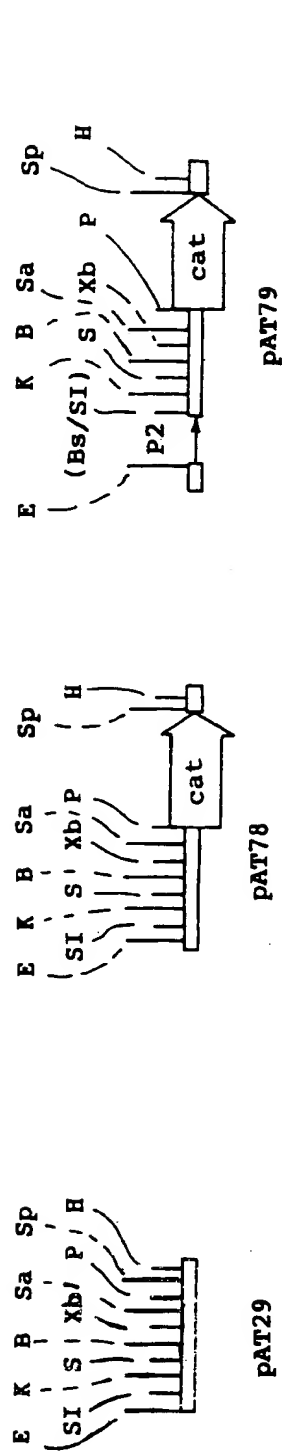


FIG. 7B

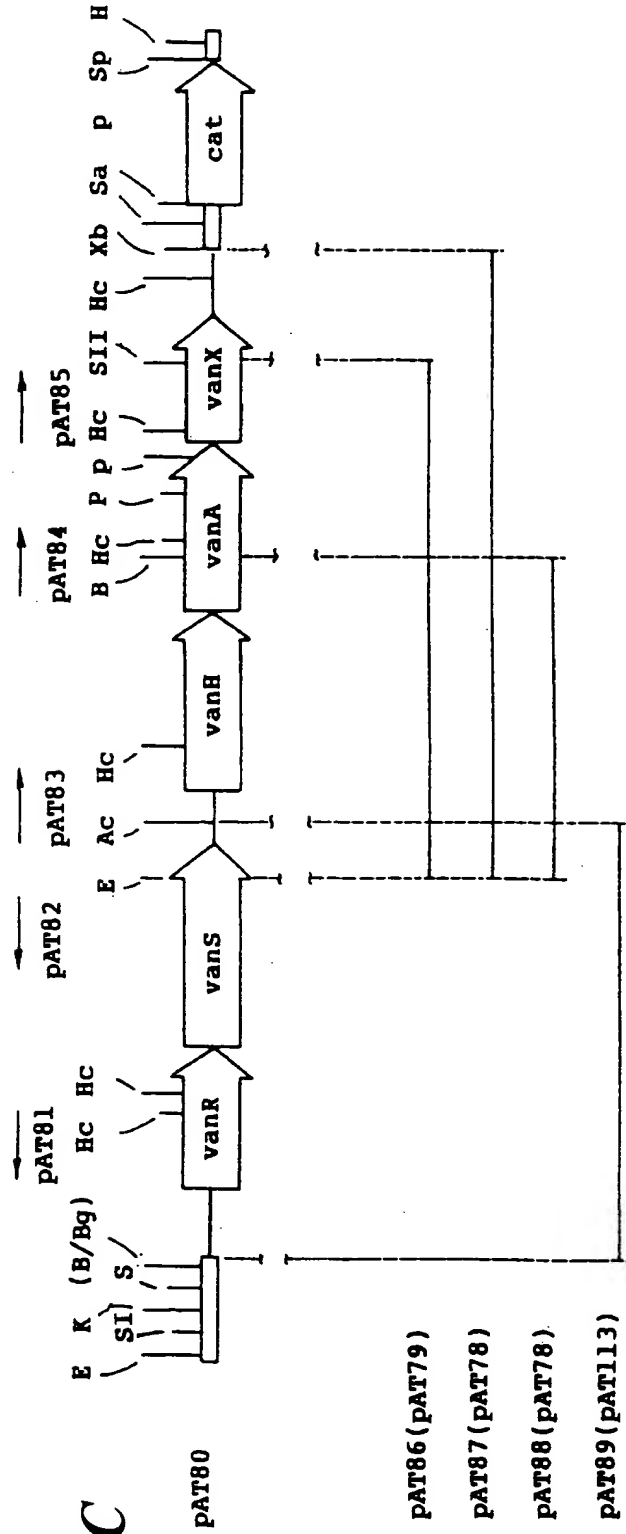


FIG. 7C

FIG. 7D

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la. brin "+"

1
GGG GTA GCG TCA GGA AAA TGC GGA TTT ACA ACG CTA AGC CTA TTT TCC TGA CGA ATC CCT
61
CGT TTT TAA CAA CGT TAA GAA AGT TTT AGT GGT CTT AAA GAA TTT AAT GAG ACT ACT TTC
121
TCT GAG TTA AAA TGG TAT TCT CCT AGT AAA TTA ATA TGT TCC CAA CCT AAG GGC GAC ATA
181
TGG TGT AAC AAA TCT TCA TTA AAG CTA CCT GTC CGT TTT TTA TAT TCA ACT GCT GTT GTT
241
AGG TGG AGA GTA TTC CAA ATA CTT ATA GCA TTG ATA ATT ATG TTT AAA GCA CTG GCT CTT
301
TGC AAT TGA TGC TGT ATG GTG CGT TCT CTA AGC TCA CCT TGT TTT CCG AAG AAA ATA GCT
361
CTT GCC AAT CCA TTC ATG GCT TCT CCT TTA TTC AAT CCT CTT TGT ATT TTT CTT CTT AAT
421
GAT TCA TCC GAT ATA TAA TTC AAA ATA AAG ATC GTT TTT TCT ATT CGG CCC ATC TCA CGT
481
AAG GCT GTA GCT AAG CTG TTT TGT CTT GAA TAG GAA CCT AGC TTC CCC ATA ATA AGG GAT
541
GCT GAA ACT GTT CCC TCC CTT ATA GAA TGA GCT AAT CGC AAA ACA TCC TCA TAA TTT TCT
601
TTA ATG ACC TTT GTA TTT ATT TGT TGT CCA CGT AAA ATG GCT TCT AGT TTT GGA TAC TCA CTT

FIG. 8A

661
GCT TTA TCT ATC GTA AAT AAT TTT GAG TCC GAT AAA TCC CTT ATT CTT GGG GCA AAT TTA
721
AAT CCT AAT AAA TGA GTC AGT CCG AAT AAT TGG TCA GTG TAA CCG GCA GTG TCT GTA TAA
781
TGT TCC TCT ATG TTT AGA TCC GTC TCA TGA TGT AAC AAA CCA TCC AAA ACA TGA ATC GCA
841
TCT CTT GAA TTA GTA TGA ATA ATC TTT GTG TAG TAA GAA GAG AAT TGA TCA CTT GTA AAT
901
CGG TAG ATG GTG GCT CCT TTT CCA GTT CCA TAA TGT GGA TTT GCA TCT GCA TGT AGT GAT
961
GAA ACA CCT AGC TGC ATT CTC ATA CCA TCT GAC GAA GAT GTT GTA CCG TCG CCC CAA TAG
1021
AAA GGC AAT TGT AAT TTA TGA TGA AAG TTT ACT AAT ATG GCT TGG GCT TTA TTC ATG GCA
1081
TCT TCA TAC ATG CGC CAT TGA GAT ACA TTG GCT AGT TGC TTA TAT GTA AGT CCG GGT GTG
1141
GCT TCG GCC ATC TTG CTC AAG CCA ATA TTC ATT CCC ATT CCA AGG GCA GCC ATG ATA
1201
ATG ATT GTT TCT TCC TTA TCT GGT TTT CGA TTA TTG GAA GCA TGA GTG AAT TGC TCA TGA
1261
AAT CCT GTT ATA TGG GCC ACA TCC ATG AGT AAA TCA GTT AAT TTT ATT CTT GGT AGC ATC
1321
TGA TAA AGG CTT GCA CTA AAT TTT TTT GCT TCT TCT GGA ACA TCT TTT TCT AAG CGT GCA
1381
AGT GAT AGC TTT GCT TTT TCA AGA GAA ACC CCA TCT AAC TTA TTG GAA TTG GCA GCT AAC
1441
CAC TTT AAC CTT TCA TTA AAG CTG GTT CTC TCC GTT ATA TAA TCT TCG AAT GAT AAA

FIG. 8B

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1501 CTA ACT GAT AAT CTC GTA TTC CCC TTC GAT TGA TTC CAT GTA TCT TCC GAA AAC AAA TAT
1561 TCC TCA AAA TCC CTA TAT TGT CTG CCA ACA ATG GAA ACA TCT CCT GCC CGA ACA TGC
1621 TCC CGA AGT TCT GTT AAA ACA GCC ATT TCA TAG TAA TGA CGA TTA ATT GTT GTA CCA TCA
1681 TCC TCG TAT AAA TGT CTT TTC CAT CGT TTT GAA ATA AAA TCC ACA GGT GAG TCA TCA GGC
1741 ACT TTT CGC TTT CCA GAT TCG TTC ATT CCT CGG ATA ATC TCA ACA GCT TGT AAA AGT GGC
1801 TCA TTT GCC TTT GTA GAA TGA AAT TCC AAT ACT CTT AAT AGC GTT GGC GTA TAT TTT CTT
1861 AGT GAA TAA AAC CGT TTT TGC AGT ANG TCT AAA TAA TCA TAG TCG GCA GGA CGT GCA AGT
1921 TCC TGA GCC TCT TCT ACT GAA GAG ACA AAG GTA TTC CAT TCA ATA ACC GAT TCT AAA ACC
1981 TTA AAA ACG TCT AAT TTT TCC TCT CTT GCT TTA ATT AAT GCT TGT CCG ATG TTC GTA AAG
2041 TGT ATA ACT TTC TCA TTT AGC TTT TTA CCG TTT TGT TTC TGG ATT TCC TCT TGA GCC TTA
2101 CGA CCT TTT GAT AAC AAA CTA AGT ATT TGC CTA TCA TGA ATT TCA AAC GCT TTA TCC GTT
2161 AGC TCC TGA GTA AGT TGT AAT AAA TAG ATG GTT AAT ATC GAA TAA CGT TTA TTT TCT TGA
2221 AAG TCA CGG AAT GCA TAC GGC TCG TAT CTT GAG CCT AAG CGA GAC AGC TGC AAC AGG CGG
2281 TTA CGG TGC AAA TGA CTA ATT TGC ACT GTT TCT AAA TCC ATT CCT CGT ATG TAT TCG AGT
2341

FIG. 8C

FIG. 8D

CGT TCT ATT ATT TTT AGA AAA GTT TCG GGT GAA GGA TGA CCC GGT GGC TCT TTT AAC CAA
2401
CCC AAT ATC GTT TTA TTG GAT TCG GAT GGA TGC TGC GAG GTA ATA ATC CCT TCA AGC TTT
2461
TCT TTT TGC TCA TTT GTT AGA GAT TTA CTA ACC GTA TTA AAT AGC TTC TTT TCA GCC ATT
2521
GCC CTT GCT TCC CAC ACC ATT CTT TCA AGT GTA GTG ATA GCA GGC AGT ATA ATT TTG TTT
2581
TTT CTT AGA AAA TCT ATG CAT TCA TGC AGT AGA TGA ATG GCA TCA CCA TTT TCC AAA GCT
2641
AAT TGA TGA AGG TAC TTA AAT GTC ATT CGA TAT TCA CTC AGG GTA AAA GTT ACA AAG TCG
2701
TAT TCA CTT CGA ATT TCT TTC AAA TGA TCC CAA AGT GTA TTT TCC CTT TGA GGA TAA TGA
2761
TCA AGC GAG GAT GGA CTA ACA CCA ATC TGT TTC GAT ATA TAT TGT ATG ACC GAA TCT GGG
2821
ATG CTT TTG ATA TGA GTG TAT GGC CAA CCG GGA TAC CGA AGA ACA GCT AAT TGA ACA GCA
2881
AAT CCT AAA CGG TTT TCT TCC CTC CTT CGC TTA TTA ACT ATT TCT AAA TCC CGT TTG GAA
2941
AAA GTG AAG TAG GTC CCC AGT ATC CAT TCA TCT TCA GGG ATT TGC ATA AAA GCC TGT CTC
3001
TGT TCC GGT GTA AGC AAT TCT CTA CCT CTC GCA ATT TTC ATT CAG TAT CAT TCC ATT TCT
3061
GTA TTT TCA ATT TAT TAG TTC AAT TAT ATA TCA ATA GAG TGT ACT CTA TTG ATA CAA ATG
3121
TAG TAG ACT GAT AAA ATC ATA GTT AAG AGC GTC TCA TAA GAC TTG TCT CAA AAA TGA GGT

3181 resolve
LEU ARG LYS ILE GLY TYR ILE ARG VAL SER SER THR ASN GLN ASN PRO SER ARG
GAT ATT TTG CGG AAA ATC GGT TAT ATT CGT GTC AGT TCG ACT AAC CAG AAT CCT TCA AGA
3241
GLN PHE GLN GLN LEU ASN GLU ILE GLY MET ASP ILE ILE TYR GLU GLU LYS VAL SER GLY
CAA TTT CAG CAG TTG AAC GAG ATC GGA ATG GAT ATT ATA TAT GAA GAG AAA GTT TCA GGA
3301
ALA THR LYS ASP ARG GLU GLN LEU LYS VAL LEU ASP ASP LEU GLN GLU ASP ASP ILE
GCA ACA AAG GAT CGC GAG CAA CTT CAA AAA GTG TTA GAC GAT TTA CAG GAA GAT GAC ATC
3361
ILE TYR VAL THR ASP LEU THR ARG ILE THR ARG SER THR GLN ASP LEU PHE GLU LEU ILE
ATT TAT GTT ACA GAC TTA ACT CGA ATC ACT ACT CGT AGT ACA CAA GAT CTA TTT GAA TTA ATC
3421
ASP ASN ILE ARG ASP LYS LYS ALA SER LEU LYS SER LEU LYS ASP THR TRP LEU ASP LEU
GAT AAC ATA CGA GAT AAA AAG GCA AGT TTA AAA TCA CTA AAA GAT ACA TGG CTT GAT TTA
3481
SER GLU ASP ASN PRO TYR SER GLN PHE LEU ILE THR VAL MET ALA GLY VAL ASN GLN LEU
TCA GAA GAT AAT CCA TAC AGC CAA TTC TTA ATT ACT GTA ATG GCT GGT AAC CAA TTA
3541
GLU ARG ASP LEU ILE ARG MET ARG GLN ARG GLU GLY ILE GLU LEU ALA LYS LYS GLU GLY
GAG CGA GAT CTT ATT CGG ATG AGA CAA CGT GAA GGG ATT GAA TTG GCT AAG AAA GAA GGA
3601
LYS PHE LYS GLY ARG LEU LYS LYS TYR HIS LYS ASN HIS ALA GLY MET ASN TYR ALA VAL
AAG TTT AAA GGT CGA TTA AAG AAG TAT CAT AAA AAT CAC GCA GGA ATG AAT TAT GCG GTA
3661
LYS LEU TYR LYS GLU GLY ASN MET THR VAL ASN GLN ILE CYS GLU ILE THR ASN VAL SER
AAG CTA TAT AAA GAA GGA AAT ATG ACT GTA AAT CAA ATT TGT GAA ATT ACT AAT GTA TCT
3721
ARG ALA SER LEU TYR ARG LYS LEU SER GLU VAL ASN ASN
AGG GCT TCA TTA TAC AGG AAA TTA TCA GAA GTG AAT AAT TAG CCA TTC TGT ATT CCG CTA

FIG. 8E

3781
ATG GGC AAT ATT TTT AAA GAA GAA AAG GAA ACT ATA AAA TAT TAA CAG CCT CCT AGC GAT
3841
GCC GAA AAG CCC TTT GAT AAA AAA AGA ATC ATC TTA AGA AAT TCT TAG TCA TTT ATT
3901
ATG TAA ATG CTT ATA AAT TCG GCC CTA TAA TCT GAT AAA TTA TTA AGG GCA AAC TTA TGT
3961
VanR MET SER ASP LYS ILE LEU ILE VAL ASP ASP GLU HIS GLU ILE ALA
GAA AGG GTG ATA ACT ATG AGC GAT AAA ATA CTT ATT GTG GAT GAT GAA CAT GAA ATT GCC
4021
ASP LEU VAL GLU LEU TYR LEU LYS ASN GLU ASN TYR THR VAL PHE LYS TYR TYR THR ALA
GAT TTG GTT GAA TTA TAC TTA AAA AAC GAG AAT TAT ACG GTT TTC AAA TAC TAT ACC GCC
4081
LYS GLU ALA LEU GLU CYS ILE ASP LYS SER GLU ILE ASP LEU ALA ILE LEU ASP ILE MET
AAA GAA GCA TTG GAA TGT ATA GAC AAG TCT GAG ATT GAC CTT GCC ATA TTG GAC ATC ATG
4141
LEU PRO GLY THR SER GLY LEU THR ILE CYS GLN LYS ILE ARG ASP LYS HIS THR TYR PRO
CTT CCC GGC ACA AGC GGC CTT ACT ATC TGT CAA AAA ATA AGG GAC AAG CAC ACC TAT CCG
4201
ILE ILE MET LEU THR GLY LYS ASP THR GLU VAL ASP LYS ILE THR GLY LEU THR ILE GLY
ATT ATC ATG CTG ACC GGG AAA GAT ACA GAG GTA GAT AAA ATT ACA GGG TTA ACA ATC GGC
4261
ALA ASP ASP TYR ILE THR LYS PRO PHE ARG PRO LEU GLU LEU ILE ALA ARG VAL LYS ALA
GCG GAT GAT TAT ATA ACG AAG CCC TTT CGC CCA CTG GAG TTA ATT GCT CGG GTA AAG GCC
4321
GLN LEU ARG ARG TYR LYS LYS PHE SER GLY VAL LYS GLU GLN ASN GLU ASN VAL ILE VAL
CAG TTG CGC CGA TAC AAA AAA TTC AGT GGA GTA AAG GAG CAG AAC GNA AAT GTT ATC GTC

FIG. 8F

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FIG. 8G

4381
HIS SER GLY LEU VAL ILE ASN VAL ASN THR HIS GLU CYS TYR LEU ASN GLU LYS GLN LEU
CAC TCC GGC CTT GTC ATT AAT GTT AAC ACC CAT GAG TGT TAT CTG AAC GAG AAG CAG TTA
4441
SER LEU THR PRO THR GLU PHE SER ILE LEU ARG ILE LEU CYS GLU ASN LYS GLY ASN VAL
TCC CTT ACT CCC ACC GAG TTT TCA ATA CTG CGA ATC CTC TGT GAA AAC AAG GGG AAT GTG
4501
VAL SER SER GLU LEU PHE HIS GLU ILE TRP GLY ASP GLU TYR PHE SER LYS SER ASN
GTT AGC TCC GAG CTG CTA TTT CAT GAG ATA TGG GGC GAC GAA TAT TTC AGC AAG AGC AAC
4561
ASN THR ILE THR VAL HIS ILE ARG HIS LEU ARG GLU LYS MET ASN ASP THR ILE ASP ASN
AAC ACC ATC ACC GTG CAT ATC CGG CAT TTG CGC GAA AAA ATG AAC GAC ACC ATT GAT AAT
4621
PRO LYS TYR ILE LYS THR VAL TRP GLY VALGLYTYRGLYSILEGLULYS
CCG AAA TAT ATA AAA ACG GTA TGG GGG GTTGGTTATAAAATTGAAAAT AAA AAA AAC GAC
4682
TYR SER LYS LEU GLU ARG LYS LEU TYR MET TYR ILE VAL ALA ILE VAL VAL VAL ALA ILE
TAT TCC AAA CTA GAA CGA AAA CTT TAC ATG TAT ATC GTT GCA ATT GTT GTG GTA GCA ATT
4742
VAL PHE VAL LEU TYR ILE ARG SER MET ILE ARG GLY LYS LEU GLY ASP TRP ILE LEU SER
GTA TTC GTG TTG TAT ATT CGT TCA ATG ATC CGA GGG AAA CTT GGG GAT TGG ATC TTA AGT
4802
ILE LEU GLU ASN LYS TYR ASP LEU ASN HIS LEU ASP ALA MET LYS LEU TYR GLN TYR SER
ATT TTG GAA AAC AAA TAT GAC TTA AAT CAC CTG GAC GCG ATG AAA TTA TAT CAA TAT TCC
4862
ILE ARG ASN ASN ILE ASP ILE PHE ILE TYR VAL ALA ILE VAL ILE SER ILE LEU ILE LEU
ATA CGG AAC AAT ATA GAT ATC TTT ATT TAT GTG GCG ATT GTT ATT AGT ATT CTT ATT CTA
4922
CYS ARG VAL MET LEU SER LYS PHE ALA LYS TYR PHE ASP GLU ILE ASN THR GLY ILE ASP
TGT CGC GTC ATG CTT TCA AAA TTC GCA AAA TAC TTT GAC GAG ATA AAT ACC GGC ATT GAT

4982 VAL LEU ILE GLN ASN GLU ASP LYS GLN ILE GLU LEU SER ALA GLU MET ASP VAL MET GLU
GTA CTT ATT CAG AAC GAA GAT AAA CNA ATT GAG CTT TCT GCG GAA ATG GAT GTT ATG GAA
5042 GLN LYS LEU ASN THR LEU LYS ARG THR LEU GLU LYS ARG GLU GLN ASP ALA LYS LEU ALA
CAA AAG CTC AAC ACA TTA AAA CCG ACT CTG GAA AAG CGA GAG CAG GAT GCA AAG CTG GCC
5102 GLU GLN ARG LYS ASN ASP VAL VAL MET TYR LEU ALA HIS ASP ILE LYS THR PRO LEU THR
GAA CAA AGA AAA AAT GAC GTT GTT ATG TAC TTG GCG CAC GAT ATT AAA ACG CCC CTT ACA
5162 SER ILE ILE GLY TYR LEU SER LEU LEU ASP GLU ALA PRO ASP MET PRO VAL ASP GLN LYS
TCC ATT ATC GGT TAT TTG AGC CTG CTT GAC GAG GCT CCA GAC ATG CCG GTA GAT CAA AAG
5222 ALA LYS TYR VAL HIS ILE THR LEU ASP LYS ALA TYR ARG LEU GLU GLN LEU ILE ASP GLU
GCA AAG TAT GTG CAT ATC ACG TTG GAC AAA GCG TAT CGA CTC GAA CAG CTA ATC GAC GAG
5282 PHE PHE GLU ILE THR ARG TYR ASN LEU GLN THR ILE THR LEU THR LYS THR HIS ILE ASP
TTT TTT GAG ATT ACA CGG TAT AAC CTA CAA ACG ATA ACG CTA ACA AAA ACG CAC ATA GAC
5342 LEU TYR TYR MET LEU VAL GLN MET THR ASP GLU PHE TYR PRO GLN LEU SER ALA HIS GLY
CTA TAC TAT ATG CTG GTG CAG ATG ACC ACC GAT GAA TTT TAT CCT CAG CTT TCC GCA CAT GGA
5402 LYS GLN ALA VAL ILE HIS ALA PRO GLU ASP LEU THR VAL SER GLY ASP PRO ASP LYS LEU
AAA CAG GCG GTT ATT CAC GCC CCC GAG GAT CTG ACC GTG TCC GGC GAC CCT GAT AAA CTC
5462 ALA ARG VAL PHE ASN ASN ILE LEU LYS ASN ALA ALA TYR SER GLU ASP ASN SER ILE
GCG AGA GTC TTT AAC AAC ATT TTG AAA AAC GCC GCT GCA TAC AGT GAG GAT AAC AGC ATC

FIG. 8H

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5522 ILE ASP ILE THR ALA GLY LEU SER GLY ASP VAL VAL SER ILE GLU PHE LYS ASN THR GLY
ATT GAC ATT ACC GCG GGC CTC TCC GGG GAT GTG GTG TCA ATC GAA TTC AAG AAC ACT GGA
5582 SER ILE PRO LYS ASP LYS LEU ALA ALA ILE PHE GLU LYS PHE TYR ARG LEU ASP ASN ALA
AGC ATC CCA AAA GAT AAG CTA GCT GCC ATA TTT GAA AAG TTC TAT AGG CTG GAC AAT GCT
5642 ARG SER SER ASP THR GLY GLY ALA GLY LEU GLY LEU ALA ILE ALA LYS GLU ILE ILE VAL
CGT TCT TCC GAT AC GGT GGC GCG GGA CTT GGA TTG GCG ATT GCA AAA GAA ATT ATT GTT
5702 GLN HIS GLY GLY GLN ILE TYR ALA GLU SER ASN ASP THR THR PHE ARG VAL GLU
CAG CAT GGA GGG CAG ATT TAC GCG GAA AGC AAT GAT AAC TAT ACG ACG TTT AGG GTA GAG
5762 LEU PRO ALA MET PRO ASP LEU VAL ASP LYS ARG ARG SER
CTT CCA GCG ATG CCA GAC TTG GTT GAT AAA AGG AGG TCC TAA GA GAT GTA TAT AAT TTT
5821 TTA GGA AAA TCT CAA GGT TAT CTT TAC TTT TTC TTA GGA AAT TAA CAA TTT AAT ATT AAG
5881 AAA CGG CTC GTT CTT ACA CGG TAG ACT TAA TAC CGT AAG AAC GAG CCG TTT TCG TTC TTC
5941 AGA GAA AGA TTT GAC AAG ATT ACC ATT GGC ATC CCC GTT TTA TTT GGT GCC TTT CAC AGA
6001
VanH MET ASN ASN ILE GLY ILE THR VAL TYR GLY CYS GLU GLN ASP GLU
AAGGGTTGG TCT TAA TT ATG AAT AAC ATC GGC ATT ACT GTT TAT GGA TGT GAG CAG GAT GAG
6063
ALA ASP ALA PHE HIS ALA LEU SER PRO ARG PHE GLY VAL MET ALA THR ILE ILE ASN ALA
GCA GAT GCA TTC CAT GCT CTT TCG CCT CGC TTT GGC GTT ATG GCA ACG ATA ATT AAC GCC
6123

FIG. 81

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ASN VAL SER GLU SER ASN ALA LYS SER ALA PRO PHE ASN GLN CYS ILE SER VAL GLY HIS
AAC GTG TCG GAA TCC AAC GCC AAA TCC GCG CCT TTC AAT CAA TGT ATC AGT GTG GGA CAT
6183
LYS SER GLU ILE SER ALA SER ILE LEU LEU ALA LEU LYS ARG ALA GLY VAL LYS TYR ILE
AAA TCA GAG ATT TCC GCC TCT ATT CTT CTT GCG CTG AAG AGA GCC GGT GTG AAA TAT ATT
6243
SER THR ARG SER ILE GLY CYS ASN HIS ILE ASP THR THR ALA ALA LYS ARG MET GLY ILE
TCT ACC CGA AGC ATC GGC TGC AAT CAT ATA GAT ACA ACT GCT GCT AAG AGA ATG GGC ATC
6303
THR VAL ASP ASN VAL ALA TYR SER PRO ASP SER VAL ALA ASP TYR THR MET MET LEU ILE
ACT GTC GAC AAT GTG GCG TAC TCG CCG GAT AGC GTT GCC GAT TAT ACT ATG ATG CTA ATT
6363
LEU MET ALA VAL ARG ASN VAL LYS SER ILE VAL ARG SER VAL GLU LYS HIS ASP PHE ARG
CTT ATG GCA GTA CGC AAC GTA AAA TCG ATT GTG CGC TCT GTG GAA AAA CAT GAT TTC AGG
6423
LEU ASP SER ASP ARG GLY LYS VAL LEU SER ASP MET THR VAL VAL GLY VAL GLY THR GLY
TTG GAC AGC GAC CGT GGC AAG GTA CTC AGC GAC ATG ACA GTT GGT GTG GTG GGA ACG GGC
6483
GLN ILE GLY LYS ALA VAL ILE GLU ARG LEU ARG GLY PHE GLY CYS LYS VAL LEU ALA TYR
CAG ATA GGC AAA GCG GTT ATT GAG CGG CTG CGA GGA TTT GGA TGT AAA GTG TTG GCT TAT
6543
SER ARG SER ARG SER ILE GLU VAL ASN TYR VAL PRO PHE ASP GLU LEU LEU GLN ASN SER
AGT CGC AGC CGA AGT ATA GAG GTA AAC TAT GTA CCG TTT GAT GAG TTG CTG CAA AAT AGC
6603
ASP ILE VAL THR LEU HIS VAL PRO LEU ASN THR ASP THR HIS TYR ILE ILE SER HIS GLU
GAT ATC GTT ACG CTT CAT GTG CCG CTC AAT ACG GAT ACG CAC TAT ATT ATC AGC CAC GAA
6663
GLN ILE GLN ARG MET LYS GLN GLY ALA PHE LEU ILE ASN THR GLY ARG GLY PRO LEU VAL
CAA ATA CAG AGA ATG AAG CAA GGA GCA TTT CTT ATC AAT ACT GGG CGC GGT CCA CTT GTA

FIG. 8J

6723 ASP THR TYR GLU LEU VAL LYS ALA LEU GLY ASN GLY LYS LEU GLY GLY ALA ALA LEU ASP
GAT ACC TAT GAG TTG GTT AAA GCA TTA GAA AAC GGG AAA CTG GGC GGT GCC GCA TTG GAT
6783 VAL LEU GLU GLY GLU GLU PHE PHE TYR SER ASP CYS THR GLN LYS PRO ILE ASP ASN
GTA TTG GAA GGA GAG GAA GAG TTT TTC TAC TCT GAT TGC ACC CAA AAA CCA ATT GAT AAT
6843 GLN PHE LEU LEU LYS LEU GLN ARG MET PRO ASN VAL ILE ILE THR PRO HIS THR ALA TYR
CAA TTT TTA CTT AAA CTT CAA AGA ATG CCT AAC GTG ATA ATC ACA CCG CAT ACG GCC TAT
6903 TYR THR GLU GLN ALA LEU ARG ASP THR VAL GLU LYS THR ILE LYS ASN CYS LEU ASP PHE
TAT ACC GAG CAA GCG TTG CGT GAT ACC GGT GAA AAA ACC ATT AAA AAC TGT TTG GAT TTT
6963 Vaa METASN ARG ILE LYS VAL ALA ILE LEU PHE GLY GLY CYS SER
GAA AGG AGA CAG GAG CATGAAT AGA ATA AAA GTT GCA ATA CTG TTT GGG GGT TGC TCA
GLU ARG ARG GLN GLU HISGLU
7021 GLU GLU HIS ASP VAL SER VAL LYS SER ALA ILE GLU ILE ALA ALA ASN ILE ASN LYS GLU
GAG GAG CAT GAC GTA TCG GTA AAA TCT GCA ATA GAG ATA GCC GCT AAC ATT AAT AAA GAA
7081 LYS TYR GLU PRO LEU TYR ILE GLY ILE THR LYS SER GLY VAL TRP LYS MET CYS GLU LYS
AAA TAC GAG CCG TTA TAC ATT GGA ATT ACG AAA TCT GGT GTA TGG AAA ATG TGC GAA AAA
7141 PRO CYS ALA GLU TRP GLU ASN ASP ASN CYS TYR SER ALA VAL LEU SER PRO ASP LYS LYS
CCT TGC GCG GAA TGG GAA AAC GAC AAT TGC TAT TCA GCT GTA CTC TCG CCG GAT AAA AAA
7201 MET HIS GLY LEU LEU VAL LYS LYS ASN HIS GLU TYR GLU ILE ASN HIS VAL ASP VAL ALA
ATG CAC GGA TTA CTT GTT AAA AAG AAC CAT GAA TAT GAA ATC AAC CAT GTT GAT GTA GCA
7261

FIG. 8K

PHE SER ALA LEU HIS GLY LYS SER SER GLY GLU ASP GLY SER ILE GLN GLY LEU PHE GLU LEU
TTT TCA GCT TTG CAT GGC AAG TCA GGT GAA GAT GGA TCC ATA CAA GGT CTG TTT GAA TTG
7321
SER GLY ILE PRO PHE VAL GLY CYS ASP ILE GLN SER SER ALA ILE CYS MET ASP LYS SER
TCC GGT ATC CCT TTT GTA GGC TGC GAT ATT CAA AGC TCA GCA ATT TGT ATG GAC AAA TCG
7381
LEU THR TYR ILE VAL ALA LYS ASN ALA THR PHE ILE ALA THR PRO VAL PHE VAL TRP VAL ILE ASN
TTG ACA TAC ATC GTT GGT GCG AAA AAT GCT ACC ATA GCT ACT CCC GCC TTT TGG GTT ATT AAT
7441
LYS ASP ASP ARG PRO VAL ALA ALA THR PHE THR TYR PRO VAL PHE VAL LYS PRO ALA ARG
AAA GAT GAT AGG CCG GTG GCA GCT ACG TTT ACC TAT CCT GTT TTT TTT AAG CCG GCG CGT
7501
SER GLY SER SER PHE GLY VAL LYS LYS VAL ASN SER ALA ASP GLU LEU ASP TYR ALA ILE
TCA GGC TCA TCC TTC GGT GTG AAA AAA GTC AAT AGC GCG GAC GAA TTG GAC TAC GCA ATT
7561
GLU SER ALA ARG GLN TYR ASP SER LYS ILE LEU ILE GLU GLN ALA VAL SER GLY CYS GLU
GAA TCG GCA AGA CAA TAT GAC AGC AAA ATC TTA ATT GAG CAG GCT GTT TCG GGC TGT GAG
7621
VAL GLY CYS ALA VAL LEU GLY ASN SER ALA ALA LEU VAL VAL GLY GLU VAL ASP GLN ILE
GTC GGT TGT GCG GTA TTG GGA AAC AGT GCC GCG TTA GTT GGT GGC GAG GTG GAC CAA ATC
7681
ARG LEU GLN TYR GLY ILE PHE ARG ILE HIS GLN GLU VAL GLU PRO GLU LYS GLY SER GLU
AGG CTG CAG TAC GGA ATC TTT CGT ATT CAT CAG GAA GTC GAG CCG GAA AAA GGC TCT GAA
7741
ASN ALA VAL ILE THR VAL PRO ALA ASP LEU SER ALA GLU GLU ARG GLY ARG ILE GLN GLU
AAC GCA GTT ATA ACC GTT CCC GCA GAC CTT TCA GCA GAG GAG CGA GGA CGG ATA CAG GAA
7801
THR ALA LYS LYS ILE TYR LYS ALA LEU GLY CYS ARG GLY LEU ALA ARG VAL ASP MET PHE
ACG GCA AAA AAA ATA TAT AAA GCG CTC GGC TGT AGA GGT CTA GCC CGT GTG GAT ATG TTT

FIG. 8L

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7861
LEU GLN ASP ASN GLY ARG ILE VAL LEU ASN GLU VAL ASN THR LEU PRO GLY PHE THR SER
TTA CAA GAT AAC GGC CGC ATT GTA CTG AAC GAA GTC AAT ACT CTG CCC GGT TTC ACG TCA
7921
TYR SER ARG TYR PRO ARG MET MET ALA ALA ALA GLY ILE ALA LEU PRO GLU LEU ILE ASP
TAC AGT CGT TAT CCC CGT ATG ATG GCT GCA GGT ATT GCA CTT CCC GAA CTG ATT GAC
7981
ARG LEU ILE VAL LEU ALA LEU LYS GLY
CGC TTG ATC GTA TTA GCG TTA AAG GGG TGATAAGC ATG GAA ATA GGA TTT ACT TTT TTA GAT
VanX MET GLU ILE GLY PHE THR PHE LEU ASP
8043
GLU ILE VAL HIS GLY VAL ARG TRP ASP ALA LYS TYR ALA THR TRP ASP ASN PHE THR GLY
GAA ATA GTA CAC GGT GTT CGT TGG GAC GCT AAA TAT GCC ACT TGG GAT AAT TTC ACC GGA
8103
LYS PRO VAL ASP GLY TYR GLU VAL ASN ARG ILE VAL GLY THR TYR GLU LEU ALA GLU SER
AAA CCG GTT GAC GGT TAT GAA GTA AAT CGC ATT GTA GGG ACA TAC GAG TTG GCT GAA TCG
8163
LEU LEU LYS ALA LYS GLU LEU ALA ALA THR GLN GLY TYR GLY LEU LEU TRP ASP GLY
CTT TTG AAG GCA AAA GAA GAA CTG GCT GCT ACC CAA GGG TAC GGA TTG CTT CTA TGG GAC GGT
8223
TYR ARG PRO LYS ARG ALA VAL ASN CYS PHE MET GLN TRP ALA ALA GLN PRO GLU ASN ASN
TAC CGT CCT AAG CGT GCT GTA AAC TGT TTT ATG CAA TGG GCT GCA CAG CCG GAA AAT AAC
8283
LEU THR LYS GLU SER TYR TYR PRO ASN ILE ASP ARG THR GLU MET ILE SER LYS GLY TYR
CTG ACA AAG GAA AGT TAT TAT CCC AAT ATT GAC CGA ACT GAG ATG ATT TCA AAA GGA TAC
8343
VAL ALA SER LYS SER SER HIS SER ARG GLY SER ALA ILE ASP LEU THR LEU TYR ARG LEU
GTG GCT TCA AAA TCA AGC CAT AGC CGC GGC AGT GCC ATT GAT CTT ACG CTT TAT CGA TTA
8403
ASP THR GLY GLU LEU VAL PRO MET GLY SER ARG PHE ASP PHE MET ASP GLU ARG SER HIS
GAC ACG GGT GAG CTT GTA CCA ATG GGG AGC CGA TTT GAT TTT ATG GAT GAA CGC TCT CAT

FIG. 8M

8463 HIS ALA ALA ASN GLY ILE SER CYS ASN GLU ALA GLN ASN ARG ARG ARG LEU ARG SER ILE
 CAT GCG GCA NAT GGA ATA TCA TGC AAT GAA GCG CAA AAT CGC AGA CGT TTG CGC TCC ATC
 8523 MET GLU ASN SER GLY PHE GLU ALA TYR SER LEU GLU TRP TRP HIS TYR VAL LEU ARG ASP
 ATG GAA AAC AGT GGG TTT GAA GCA TAT AGC CTC GAA TGG TGG CAC TAT GTA TTA AGA GAC
 8583 GLU PRO TYR PRO ASN SER TYR PHE ASP PHE PRO VAL LYS
 GAA CCA TAC CCC AAT AGC TAT TTT GAT TTC CCC GTT AAA TAAA CTT TTA ACC GTT GCA
 8641 CGG ACA AAC TAT ATA AGC TAA CTC TTT CGG CAG GAA ACC CGA CGT ATG TAA CTG GTT CTT
 8701 AGG GAA TTT ATA TAT AGT AGA TAG TAT TGA AGA TGT AAG GCA GAG CGA TAT TGC GGT CAT
 8761 TAT CTG CGT GCG CTG CCG CAA GAT AGC CTG ATA ATA AGA CTG ATC GCA TAG AGG GGT GGT
 8821 ATT TCA CAC CGC CCA TTG TCA ACA GGC AGT TCA GCC TCG TTA AAT TCA GCA TGG GTA TCA
 8881 CTT ATG AAA ATT CAT CTA CAT TGG TGA TAA TAG TAA ATC CAG TAG GGC GAA ATA ATT GAC
 8941 TGT AAT TTA CGG GGC AAA ACG GCA CAA TCT CAA ACG AGA TTG TGC CGT TTA AGG GGA AGA
 9001 TTC TAG AAA TAT TTC ATA CTT CCA ACT ATA TAG TTA AGG AGG AGA CTG AAA ATG AAG AAG
 9061 LEU PHE PHE LEU LEU LEU LEU PHE LEU ILE TYR LEU GLY TYR ASP TYR VAL ASN GLU
 TTG TTT TTT TTA TTG TTA TTG TTA TTC TTA ATA TAC TTA GGT TAT GAC TAC GTT AAT GAA

VanY

FIG. 8N

9121
ALA LEU PHE SER GLN GLU LYS VAL GLU PHE GLN ASN TYR ASP GLN ASN PRO LYS GLU HIS
GCA CTG TTT TCT CAG GAA AAA GTC GAA TTT CAA AAT TAT GAT CAA AAT CCC AAA GAA CAT
9181
LEU GLU ASN SER GLY THR SER GLU ASN THR GLN GLU LYS THR ILE THR GLU GLU GLN VAL
ITA GAA AAT AGT GGG ACT TCT GAA AAT ACC CAA GAG AAA ACA ATT ACA GAA GAA CAG GTT
9241
TYR GLN GLY ASN LEU LEU LEU ILE ASN SER LYS TYR PRO VAL ARG GLN GLU SER VAL LYS
TAT CAA GGA AAT CTG CTA TTA ATC AAT AGT AAA TAT CCT GTT CGC CAA GAA AGT GTG AAG
9301
SER ASP ILE VAL ASN LEU SER LYS HIS ASP GLU LEU ILE ASN GLY TYR GLY LEU LEU ASP
TCA GAT ATC GTG AAT TTA TCT AAA CAT GAC GAA TTA ATA AAT GGA TAC GGG TTG CTT GAT
9361
SER ASN ILE TYR MET SER LYS GLU ILE ALA GLN LYS PHE SER GLU MET VAL ASN ASP ALA
AGT AAT ATT TAT ATG TCA AAA GAA ATA GCA CAA AAA TTT TCA GAG ATG GTC AAT GAT GCT
9421
VAL LYS GLY GLY VAL SER HIS PHE ILE ILE ASN SER GLY TYR ARG ASP PHE ASP GLU GLN
GTA AAG GGT GGC GTT AGT CAT TTT ATT ATT AAT AGT GGC TAT CGA GAC TTT GAT GAG CAA
9481
SER VAL LEU TYR GLN GLU MET GLY ALA GLU TYR ALA LEU PRO ALA GLY TYR SER GLU HIS
AGT GTG CTT TAC CAA GAA ATG GGG GCT GAG TAT GCC TTA CCA GCA GGT TAT AGT GAG CAT
9541
ASN SER GLY LEU SER LEU ASP VAL GLY SER SER LEU THR LYS MET GLU ARG ALA PRO GLU
AAT TCA GGT TTA TCA CTA GAT GTA GGA TCA AGC TTG ACG AAA ATG GAA CGA GCC CCT GAA
9601
GLY LYS TRP ILE GLU GLU ASN ALA TRP LYS TYR GLY PHE ILE LEU ARG TYR PRO GLU ASP
GGA AAG TGG ATA GAA GAA AAT GCT TGG AAA TAC GGG TTC ATT TTA CGT TAT CCA GAG GAC
9661
LYS THR GLU LEU THR GLY ILE GLN TYR GLU PRO TRP HIS ILE ARG TYR VAL GLY LEU PRO
AAA ACA GAG TTA ACA GGA ATT CAA TAT GAA CCA TGG CAT ATT CGC TAT GTT GGT TTA CCA
9721

FIG. 80

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HIS SER ALA ILE MET LYS GLU LYS ASN PHE VAL LEU GLU TYR MET ASP TYR LEU LYS
CAT AGT GCG ATT ATG AAA GAA AAG AAT TTC GTT CTC GAG GAA TAT ATG GAT TAC CTA AAA
9781
GLU GLU LYS THR ILE SER VAL SER VAL ASN GLY GLU LYS TYR GLU ILE PHE TYR TYR PRO
GAA GAA AAA ACC ATT TCT GTT GTT AAT GGT GAA AAA TAT GAG ATC TTT TAT TAT CCT
9841
VAL THR LYS ASN THR THR ILE HIS VAL PRO THR ASN LEU ARG TYR GLU ILE SER GLY ASN
GTT ACT AAA AAT ACC ACC ATT CAT GTG CCG ACT AAT CTT CGT TAT GAG ATA TCA GGA AAC
9901
ASN ILE ASP GLY VAL ILE VAL THR VAL PHE PRO GLY SER THR HIS THR ASN SER ARG ARG
AAT ATA GAC GGT GTA ATT GTG ACA GTG TTT CCC GGA TCA ACA CAT ACT AAT TCA AGG AGG
9961
TAA GGA TGG CGG AAT GAA ACC AAC GAA ATT AAT GAA CAG CAT TAT TGT ACT AGC ACT TTT
10021
GGG GTA ACG TTA GCT TTT TAA TTT AAA ACC CAC GTT AAC TAG GAC ATT GCT ATA CTA ATG

10081
ATA CAA CTT AAA CAA AAG AATTAGAGG AAA TTA TA TTT GGA AAA ATA TTA TCT AGA GGA TTG
10143
LEU ALA LEU TYR LEU VAL THR LEU ILE TRP LEU VAL LEU PHE LYS LEU GLN TYR ASN ILE
CTA GCT TTA TAT TTA GTG ACA CTA ATC TGG TTA GTG TTA TTC AAA TTA CAA TAC AAT ATT
10203
LEU SER VAL PHE ASN TYR HIS GLN ARG SER LEU ASN LEU THR PRO PHE THR ALA THR GLY
TTA TCA GTA TTT AAT TAT CAT CAA AGA AGT CTT AAC TTG ACT CCA TTT ACT GCT ACT GGG
10263
ASN PHE ARG GLU MET ILE ASP ASN VAL ILE ILE PHE ILE PRO PHE GLY LEU LEU ASN
AAT TTC AGA GAG ATG ATA GAT AAT GTT ATA ATC TTT ATT CCA TTT GGC TTG CTT TTG AAT

FIG. 8P

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10323 VAL ASN PHE LYS GLU ILE GLY PHE LEU PRO LYS PHE ALA PHE VAL LEU VAL LEU SER LEU
GTC AAT TTT AAA GAA ATC GGA TTT TTA CCT AAG TTT GCT TTT GTA CTG GTT TTA AGT CTT
10383 THR PHE GLU ILE ILE GLN PHE ILE PHE ALA ILE GLY ALA THR ASP ILE THR ASP VAL ILE
ACT TTT GAA ATA ATT CAA TTT ATC TTC GCT ATT GGA GCG ACA GAC ATA ACA GAT GTA ATT
10443 THR ASN THR VAL GLY GLY PHE LEU GLY LEU LYS LEU TYR GLY LEU SER ASN LYS HIS MET
ACA AAT ACT GTT GGA GGC TTT CTT GGA CTG AAA TTA TAT GGT TTA AGC AAT AAG CAT ATG
10503 ASN GLN LYS LYS LEU ASP ARG VAL ILE ILE PHE VAL GLY ILE LEU LEU VAL LEU LEU
AAT CAA AAA AAA TTA GAC AGA GTT ATT ATT TTT GTA GGT ATA CTT TTG CTC GTA TTA TTG
10563 LEU VAL TYR ARG THR HIS LEU ARG ILE ASN TYR VAL
CTC GTT TAC CGT ACC CAT TTA AGA ATA AAT TAC GTG TAAG ATG TCT AAA TCA AGC AAT
10621 CTG ATC TTT CAT ACA CAT AAA GAT ATT GAA TGA ATT GGA TTA GAT GGA AAA CGG GAT GTG
10681 GGG AAA CTC GCC CGT AGG TGT GAA GTG AGG GGA AAA CCG GTG ATA AAG TAA AAA GCT TAC
10741 CTA ACA CTA TAG TAA CAA AGA AAG CCC AAT TAT CAA TTT TAG TGC TGA GGA ATT GGT CTC
10801 TTT AAT AAA TTT CCT TAA CGT TGT AAA TCC GCA TTT TCC TGA CGG TAC CCC

FIG. 8Q

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Ib brin(-)

1
CAA AAT ATC ACC TCA TTT TTG AGA CAA GTC TTA TGA GAC GCT CTT AAC TAT GAT TTT ATC
61
AGT CTA CTA CAT TTG TAT CAA TAG AGT ACA CTC TAT TGA TAT ATA ATT GAA CTA ATA AAT

121
Transposase
TGA AAA TAC AGA AAT GGA ATGATACTG AA ATG AAA ATT GCG AGA GGT AGA GAA TTG CTT ACA
182
PRO GLU GLN ARG GLN ALA PHE MET GLN ILE PRO GLU ASP GLU TRP ILE LEU GLY THR TYR
CCG GAA CAG AGA CAG GCT TTT ATG CAA ATC CCT GAA GAT GAA TGG ATA CTG GGG ACC TAC
242
PHE THR PHE SER LYS ARG ASP LEU GLU ILE VAL ASN LYS ARG ARG GLU GLU ASN ARG
TTC ACT TTT TCC AAA CCG GAT TTA GAA ATA GTT AAT AAG CGA AGG AGG GAA AAC CGT
302
LEU GLY PHE ALA VAL GLN LEU ALA VAL LEU ARG TYR PRO GLY TRP PRO TYR THR HIS ILE
TTA GGA TTT GCT GTT CAA TTA GCT GTT CTT CGG TAT CCC GGT TGG CCA TAC ACT CAT ATC
362
LYS SER ILE PRO ASP SER VAL ILE GLN TYR ILE SER LYS GLN ILE GLY VAL SER PRO SER
AAA AGC ATC CCA GAT TCG GTC ATA CAA TAT ATA TCG AAA CAG ATT GGT GTT AGT CCA TCC
422
SER LEU ASP HIS TYR PRO GLN ARG GLU ASN THR LEU TRP ASP HIS LEU LYS GLU ILE ARG
TCG CTT GAT CAT TAT CCT CAA AGG GAA AAT ACA CTT TGG GAT CAT TTG AAA GAA ATT CGA

FIG. 8R

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482 SER GLU TYR ASP PHE VAL THR PHE THR LEU SER GLU TYR ARG MET THR PHE LYS TYR LEU
AGT GAA TAC GAC TTT GTA ACT TTT ACC CTG AGT GAA TAT CGA ATG ACA TTT AAG TAC CTT
542
HIS GLN LEU ALA LEU GLU ASN GLY ASP ALA ILE HIS LEU LEU HIS GLU CYS ILE ASP PHE
CAT CAA TTA GCT TTG GAA AAT GGT GAT GCC ATT CAT CTA CTG CAT GAA TGC ATA GAT TTT
602
LEU ARG LYS ASN LYS ILE ILE LEU PRO ALA ILE THR THR LEU GLU ARG MET VAL TRP GLU
CTA AGA AAA AAC AAA ATT ATA CTG CCT GCT ATC ACT ACA CTT GAA AGA ATG GTG TGG GAA
662
ALA ARG ALA MET ALA GLU LYS LYS LEU PHE ASN THR VAL SER LYS SER LEU THR ASN GLU
GCA AGG GCA ATG GCT GAA AAG AAG CTA TTT AAT ACG GTT AGT AAA TCT CTA ACA AAT GAG
722
GLN LYS GLU LYS LEU GLU GLY ILE ILE THR SER GLN HIS PRO SER GLU SER ASN LYS THR
CAA AAA GAA AAG CTT GAA GGG ATT ATT ACC TCG CAG CAT CCA TCC GAA TCC AAT AAA ACG
782
ILE LEU GLY TRP LEU LYS GLU PRO PRO GLY HIS PRO SER PRO GLU THR PHE LEU LYS ILE
ATA TTG GGT TGG TTA AAA GAG CCA CCG GGT CAT CCT TCA CCC GAA ACT TTT CTA AAA ATA
842
ILE GLU ARG LEU GLU TYR ILE ARG GLY MET ASP LEU GLU THR VAL GLN ILE SER HIS LEU
ATA GAA CGA CTC GAA TAC ATA CGA GGA ATG GAT TTA GAA ACA GTG CAA ATT AGT CAT TTG
902
HIS ARG ASN ARG LEU LEU GLN LEU SER ARG LEU GLY SER ARG TYR GLU PRO TYR ALA PHE
CAC CGT AAC CGC CTG TTG CAG CTG TCT CGC TTA GGC TCA AGA TAC GAG CCG TAT GCA TTC
962
ARG ASP PHE GLN GLU ASN LYS ARG TYR SER ILE LEU THR THR ILE TYR LEU LEU GLN LEU THR
CGT GAC TTT CAA GAA AAT AAA CGT TAT TCG ATA TTA ACC ATC TAT TTA TTA CAA CTT ACT
1022
GLN GLU LEU THR ASP LYS ALA PHE GLU ILE HIS ASP ARG GLN ILE LEU SER LEU LEU SER
CAG GAG CTA ACG GAT AAA GCG TTT GAA ATT CAT GAT AGG CAA ATA CTT AGT TTG TTA TCA

FIG. 8S

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1082 LYS GLY ARG LYS ALA GLN GLU GLU ILE GLN LYS GLN ASN GLY LYS LYS LEU ASN GLU LYS
 AAA GGT CGT AAG GCT CAA GAG GAA ATC CAG AAA CAA AAC AAG CTA AAT GAG AAA
 1142 VAL ILE HIS PHE THR ASN ILE GLY GLN ALA LEU ILE LYS ALA ARG GLU GLU LYS LEU ASP
 GTT ATA CAC TTT ACG AAC ATC GGA CAA GCA TTA ATT AAA GCA AGA GAG GAA AAA TTA GAC
 1202 LYS VAL LEU GLU SER VAL ILE GLU TRP ASN THR PHE VAL SER SER VAL GLU GLU
 GTT TTT AAG GTT TTA GAA TCG GTT ATT GAA TGG AAT ACC TTT GTC TCT TCA GTA GAA GAG
 1262 ALA GLN GLU LEU ALA ARG PRO ALA ASP TYR ASP TYR LEU LEU GLN LYS ARG PHE
 GCT CAG GAA CTT GCA CGT CCT GCC GAC TAT GAT TAT TTA GAC TTA CTG CAA AAA CGG TTT
 1322 TYR SER LEU ARG LYS TYR THR PRO THR LEU LEU ARG VAL LEU GLU PHE HIS SER THR LYS
 TAT TCA CTA AGA AAA TAT ACG CCA ACG CTA TTA AGA GTA TTT CAT TCT ACA AAG
 1382 ALA ASN GLU PRO LEU LEU GLN ALA VAL GLU ILE ILE ARG GLY MET ASN GLU SER GLY LYS
 GCA AAT GAG CCA CTT TTA CAA GCT GTT GAG ATT ATC CGA GGA ATG AAC GAA TCT GGA AAG
 1442 ARG LYS VAL PRO ASP SER PRO VAL ASP PHE ILE SER LYS ARG TRP LYS ARG HIS LEU
 CGA AAA GTG CCT GAT GAC TCA CCT GTG GAT TTT ATT TCA AAA CGA TGG AAA AGA CAT TTA
 1502 TYR GLU ASP ASP GLY THR THR ILE ASN ARG HIS TYR TYR GLU MET ALA VAL LEU THR GLU
 TAC GAG GAT GAT GGT ACA ACA ATT AAT CGT CAT TAC TAT GAA ATG GCT GTT TTA ACA GAA
 1562 LEU ARG GLU HIS VAL ARG ALA GLY ASP VAL SER ILE VAL GLY SER ARG GLN TYR ARG ASP
 CTT CGG GAG CAT GTT CGG GCA GGA GAT GTT TCC ATT GTT GGC AGC AGA CAA TAT AGG GAT

FIG. 8T

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1622 PHE GLU GLU TYR LEU PHE SER GLU ASP THR TRP ASN GLN SER LYS GLY ASN THR ARG LEU
TTT GAG GAA TAT TTG TTT TCG GAA GAT ACA TGG AAT CAA TCG AAG GGG AAT ACG AGA TTA
1682 SER VAL SER LEU SER PHE GLU ASP TYR ILE THR GLU ARG THR SER SER PHE ASN GLU ARG
TCA GTT AGT TTA TCA TTC GAA GAT TAT ATA ACG GAG AGA ACC AGC AGC TTT AAT GAA AGG
1742 LEU LYS TRP LEU ALA ALA ASN SER ASN LYS LEU ASP GLY VAL SER LEU GLU LYS GLY LYS
TTA AAG TGG TTA GCT GCC AAT TCC AAT AAG TTA GAT GGG GTT TCT CTT GAA AAA GGA AAG
1802 LEU SER LEU ALA ARG LEU GLU LYS ASP VAL PRO GLU GLU ALA LYS LYS PHE SER ALA SER
CTA TCA CTT GCA CGC TTA GAA AAA GAT GTT CCA GAA GAA GCA AAA AAA TTT AGT GCA AGC
1862 LEU TYR GLN MET LEU PRO ARG ILE LYS LEU THR ASP LEU LEU MET ASP VAL ALA HIS ILE
CTT TAT CAG ATG CTA CCA AGA ATA AAA TTA ACT GAT TTA CTC ATG GAT GTG GCC CAT ATA
1922 THR GLY PHE HIS GLU GLN PHE THR HIS ALA SER ASN ASN ARG LYS PRO ASP LYS GLU GLU
ACA GGA TTT CAT GAG CAA TTC ACT CAT GCT TCC AAT AAT CCA AAA CCA GAT AAG GAA GAA
1982 THR ILE ILE ILE MET ALA ALA LEU LEU GLY MET GLY MET ASN ILE GLY LEU SER LYS MET
ACA ATC ATT ATC ATG GCT GCC CTT TTA GGA ATG GGA ATG AAT ATT GGC TTG AGC AAG ATG
2042 ALA GLU ALA THR PRO GLY LEU THR TYR LYS GLN LEU ALA ASN VAL SER GLN TRP ARG MET
GCC GAA GCC ACA CCC GGA CTT ACA TAT AAG CAA CTA GCC AAT GTA TCT CAA TGG CGC ATG
2102 TYR GLU ASP ALA MET ASN LYS ALA GLN ALA ILE LEU VAL ASN PHE HIS HIS LYS LEU GLN
TAT GAA GAT GCC ATG AAT AAA GCC CAA GCC ATA TTA GTA AAC TTT CAT CAT AAA TTA CAA
2162 LEU PRO PHE TYR TRP GLY ASP GLY THR THR SER SER ASP GLY MET ARG MET GLN LEU
TTG CCT TTC TAT TGG GGC GAC GGT ACA ACA TCT TCG TCA GAT GGT ATG AGA ATG CAG CTA

FIG. 8U

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2222 GLY VAL SER SER LEU HIS ALA ASP ALA ASN PRO HIS TYR GLY THR GLY LYS GLY ALA THR
GGT GTT TCA TCA CTA CAT GCA GAT GCA AAT CCA CAT TAT GGA ACT GGA AAA GGA GCC ACC
2282 ILE TYR ARG PHE THR SER ASP GLN PHE SER SER TYR TYR THR LYS ILE ILE HIS THR ASN
ATC TAC CGA TTT ACA AGT GAT CAA TTC TCT TCT TAC TAC ACA AAG ATT ATT CAT ACT AAT
2342 SER ARG ASP ALA ILE HIS VAL LEU ASP GLY LEU LEU HIS HIS GLU THR ASP LEU ASN ILE
TCA AGA GAT GCG ATT CAT GTT TTG GAT GGT TTG TTA CAT CAT CAT GAG ACG GAT CTA AAC ATA
2402 GLU GLU HIS TYR THR ASP THR ALA GLY TYR THR ASP GLN ILE PHE GLY LEU THR HIS LEU
GAG GAA CAT TAT ACA GAC ACT GCC GGT TAC ACT GAC CAA ATA TTC GGA CTG ACT CAT TTA
2462 LEU GLY PHE LYS PHE ALA PRO ARG ILE ARG ASP LEU SER ASP SER LYS LEU PHE THR ILE
TTA GGA TTT AAA TTT GCC CCA AGA ATA AGG GAT TTA TCG GAC TCA AAA TTA TTT ACG ATA
2522 ASP LYS ALA SER GLU TYR PRO LYS LEU GLU ALA ILE LEU ARG GLY GLN ILE ASN THR LYS
GAT AAA GCA AGT GAG TAT CCA AAA CTA GAA GCC ATT TTA CGT GGA CAA ATA AAT ACA AAG
2582 VAL ILE LYS GLU ASN TYR GLU ASP VAL LEU ARG LEU ALA HIS SER ILE ARG GLU GLY THR
GTC ATT AAA GAA AAT TAT GAG GAT GTT TTG CGA TTA GCT CAT TCT ATA AGG GAG GGA ACA
2642 AGT TTC AGC ATC CCT TAT TAT GGG GAA GCT AGG TTC CTA TTC AAG ACA AAA CAG CTT AGC
VAL SER ALA SER LEU ILE MET GLY LYS LEU GLY SER TYR SER ARG GLN ASN SER LEU ALA
GTT TCA GCA TCC CTT ATT ATG GGG AAG CTA GGT TCC TAT TCA AGA CAA AAC AGC TTA GCT
2702 THR ALA LEU ARG GLU MET GLY ARG ILE GLU LYS THR ILE PHE ILE LEU ASN TYR ILE SER
ACA GCC TTA CGT GAG ATG GGC CGA ATA GAA AAA ACG ATC TTT ATT TTG AAT TAT ATA TCG

FIG. 8V

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2762 ASP GLU SER LEU ARG ARG LYS ILE GLN ARG GLY LEU ASN LYS GLY GLU ALA MET ASN GLY
GAT GAA TCA TTA AGA AGA AAA ATA CAA AGA GGA TTG AAT AAA GGA GAA GCC ATG AAT GGA
2822 LEU ALA ARG ALA ILE PHE PHE GLY LYS GLN GLY GLU LEU ARG GLU ARG THR ILE GLN HIS
TTG GCA AGA GCT ATT TTC TTC GGA AAA CAA GGT GAG CTT AGA GAA CGC ACC ATA CAG CAT
2882 GLN LEU GLN ARG ALA SER ALA LEU ASN ILE ILE ILE ASN ALA ILE SER ILE TRP ASN THR
CAA TTG CAA AGA GGC AGT GCT TTA AAC ATA ATT ATC AAT GCT ATA AGT ATT TGG AAT ACT
2942 TCT CCA CCT AAC AGC AGT TGA ATA TAA AAA ACG GAC AGG TAG CTT TAA TGA AGA TTT
LEU HIS LEU THR THR ALA VAL GLU TYR LYS LYS ARG THR GLY SER PHE ASN GLU ASP LEU
CTC CAC CTA ACA ACA GCA GTT GAA TAT AAA AAA CGG ACA GGT AGC TTT AAT GAA GAT TTG
3002 LEU HIS HIS MET SER PRO LEU GLY TRP GLU HIS ILE ASN LEU LEU GLY GLU TYR HIS PHE
TTA CAC CAT ATG TCG CCC TTA GGT TGG GAA CAT ATT AAT TTA CTA GGA GAA TAC CAT TTT
3062 ASN SER GLU LYS VAL SER LEU ASN SER LEU ARG PRO LEU LYS LEU SER
AAC TCA GAG AAA GTA GTC TCA TTA AAT TCT TTA AGA CCA CTA AAA CTT TCT TAA CGT TG
3121 TTA AAA ACG AGG GAT TCG TCA GGA AAA TAG GCT TAG CGT TGT AAA TCC GCA TTT TCC TGA
3181 CGC TAC CCC

FIG.8W

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SacI
GAGCTCTTCCTTCAACGCACCTTCTGTACCAAGAGTTGTTGC 42

CATTGATCACTAACAAATAGCTTCCCCCTGCTTCTTCAAGCCCTTGTGCATAAAATCGTTAGATTTTCA 111

TCATAAAAATACGAGAAAGACAAACAGGAAGACCGCAAATTTCTTTCTTTCTCCTAGGTACACTGAATG 180

RBS M K K I A V L F G G
TAACCTTAAAGAAAAAGGAAAGGAAATAATGATGAAAAAATGCCCCGTTTATTGGAGGG 244

N S P E Y S V S L T S A A S V I Q A I D
AATTCTCCAGAATACTCAGTGTCTACTAACCCTCAGCAGCAAGTGTGATCCCAAGCTATTGAC 304

P L K Y E V M T I G I A P T M D W Y W Y
CCGCTGAAATATGAAGTAATGACCATTGGCATCGCACCAACAATGGATGGTATTGGTAT 364

Q G N L A N V R N D T W L E D H K N C H
CAAGGAAACCTCGCGAATGTTCCGAATGATACTTGGCTAGAGATCACAATAAACTGTCAC 424

Q L T F S S Q G F I L G E K R I V P D V
CAGCTGACTTTTCTAGCCCAAGGATTTATATATTAGGAGAAAAACGAATCGTCCCTGATGTC 484

L F P V L H G K Y G E D G C I Q G L L E
CTCTTCCAGCTCTTGCATGGGAAGTATGCCGAGGATGGCTGTATCCCAAGGACTGCTTGAA 544

L M N L P Y V G C H V A A S A L C M N K
CTAATGAACCTGCCTTATGTTGGTTGCCCATGTGCTGCTCGCTCCGCATTATGTATGAACAA 604

FIG. 9A

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W L L H Q L A D T M G I A S A P T L L L
TGGCTCTTGCACTTGCTGATACCATGGGAATCGCTAGTCTCCCACTTTGCTTTTA 664
S R Y E N D P A T I D R F I Q D H G F P
TCCCGCTATGAAAACGATCCTGCCACAATCGATCGTTTATTCAAGACCATGGATTCCCG 724
I F I K P N E A G S S K G I T K V T D K
ATCTTTATCAAGCCGAATGAAGCCGGTTCTTCAAAAGGGATCACAAAAGTAAGTACAA 784
T A L Q S A L T T A F A Y G S T V L I Q
ACAGCGCTCCAATCTGCATTAAACGACTGCTTTTGCTTACGGTTCTACTGTGTGATCCAA 844
K A I A G I E I G C G I L G N E Q L T I
AAGCGGATAGCGGTATGAAATTGGCTGGCGCATCTTAGGAAATGAGCAATTGACGATT 904
G A C D A I S L V D G F F D F E E K Y Q
GGTGCTGTGATGCGGATTCTCTTGTCGACGGTTTTTTGATTTTGAAGAGAAATACCAA 964
L I S A T I T V P A P L P L A L E S Q I
TTAATCAGCGCCACGATCACTGTCCCAGCACCATTTGCCCTCTCGCGCTTGAATCACAGATC 1024
K E Q A Q L L Y R N L G L T G L A R I D
AAGGAGCAGGCACAGCTGCTTTATCGAAACTTGGGATTGACGGGTCTGGCTCGAATCGAT 1084
F F V T N Q G A I Y L N E I N T M P G F
TTTTTCGTACCAATCAAGGAGCGGATTATTATAACGAAATCAACACCATGCCGGGATT 1144

FIG. 9B

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T G H S R Y P A M A E V G L S Y E I L
ACTGGGCACTCCGGCTACCCAGCTATGATGGCGGAAGTCGGGTTATCCTACGAAATATTA 1204

V E Q L E A L A E E D K R *
GTAGAGCAATTGATTGCCACTGGCAGAGGAGGACAAACGATGAACACATTACAATTGATCAATA 1267

AAAACCATCCATTGAAAAAATCAAGAGCCCCCGCACTTAGTGCTAGCTCCTTTTAGCGATCACGATG 1336

TTTACCTGCAG
PstI 1347

FIG. 9C

<--1-->

VanC	VLFPVLHGKY	GEDGCIQGLL	ELMNLPVVGC	HVAASALCMN	KWLLHQLADT	MGIASAPTL	LSRYEND---	PATIDRFIQD	HGFIFIKPN	EAGSSKGITK
VanA	VAFSALHGKS	GEDGSIQGLF	ELSGIPVGC	DIOSSAICMD	KSLTYIVAKN	AGIATPAFW	INKDDRP---	-----VAAT	FTYPVFVKPA	RSGSFGVKK
Od1A	VIFPIVHGT	GEDGSLOQML	RVANLPFVGS	DVLASAACMD	KDVTKRLLRD	AGLINIAPFIT	LTRANRHNIS	FAE---VESK	LGLPLFKVPA	NQGSSVGVSX
Od1B	--FIALHGRG	GEDGTLQOGL	ELMGLPVTGS	GWMASALSMD	KLRSKILLWQG	AGLPVAPWVA	LTRAEFKEGL	SOKQLAEISA	LGLPVIWKPS	RESSVGMSK
	I CII	IIUCCIUCC	CI IC C II CI I	C	IC	IC	CCC		ICCCII	III IC I

domaine 2

VTDKTA LQSA LTTAFAYGST VLIQKAIAGI EIGGGILGNE -QLTIGACDA ISLVGDFDFD EEKYQLIS-- --ATTVPAP LPLALESQIK EQAQLLYRNL
 VNSADELDYA IESARQYDSK ILIEQAVSGC EVGCAVLGNS AALVGEVDQ IRLQYGIFRI HQEVEPEKGS ENAVITVPAD LSAEERGRIO ETAKKIYKAL
 VTSEEQYATA VALAFEFDHK VIVEQGIKGR EIECAVLGND NP-----QAST CGEILVTSDF YAYDTKYIDE DGAKVWPAA IAPEINDKIR AIAVQAYQTL
 VVAENALQDA LRLAFQHDDEE VLIEKWLSGP EFTVAILGEE IL-----P SIRIQPSGTF YDYEAKYLSO LEASQEANLQ ALVLKAWTTL
 I L C I CCC CC I IC CCII

domaine 3

VanC GLTGLARIDF FVTNQGAIIYL NEINTMPGFT GHSRYPAMMA EVGLSYEILV EQLIALAEED KR
 VanA GCRGLARVDM FLDONGRIVL NEVNTLPGFT SYSRYPRMMA AAGIALPELI DRLIVLALKG
 Ood1A GCAGMARVDV FLTPNEVVI NEINTLPGFT NISWYPKLWQ ASGLGYTDLI TRLIELALER HAANNALKTT M
 Ood1B GCKGWGRIDV MLDSGQFYL LEANTSPGMT SHSLVPMAR QAGMSFSQLV VRILELAD
 I I CIGIC CC C C I I I U U C I I I I C I C C C I I
 domain 4

FIG. 10

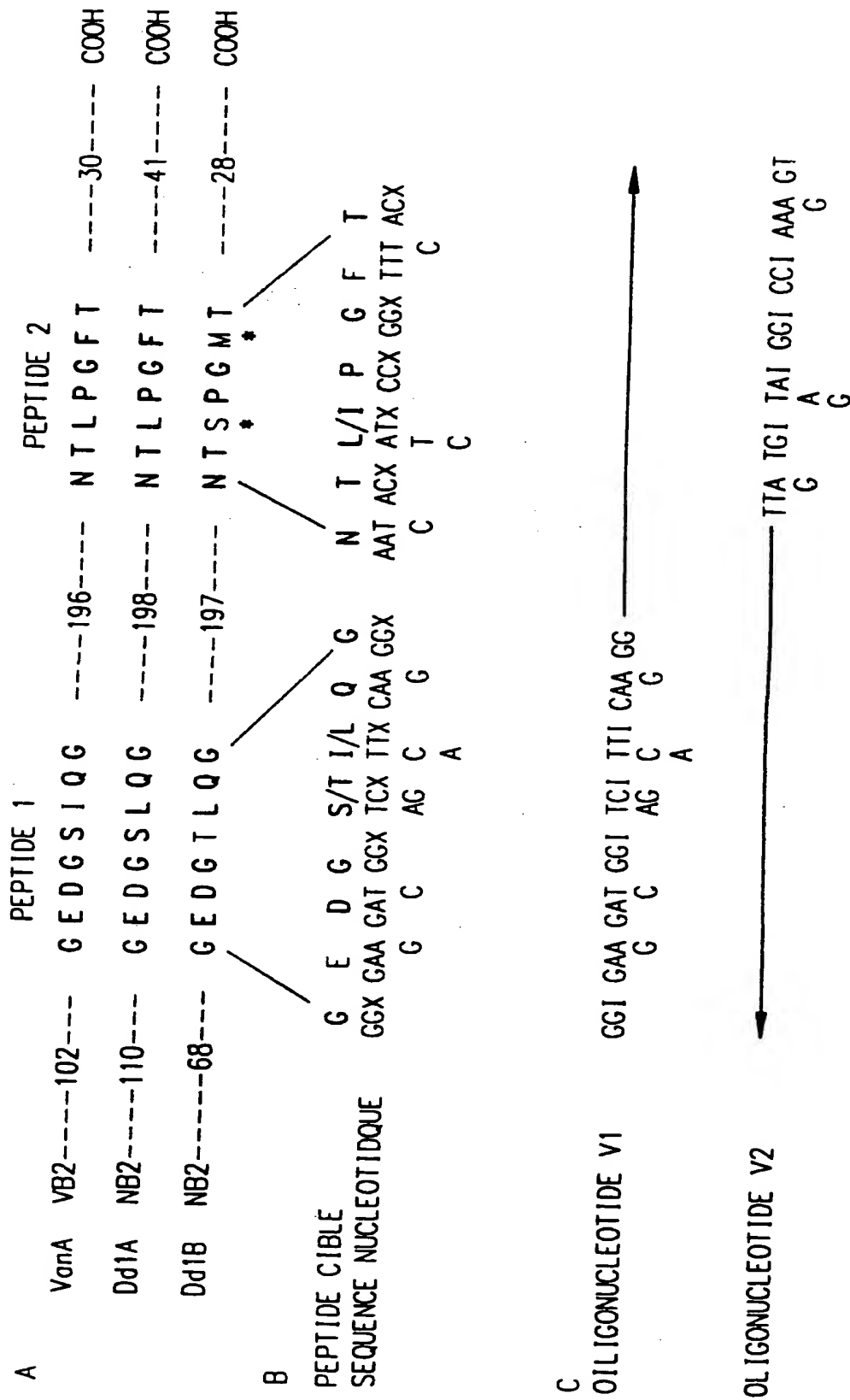


FIG. 11

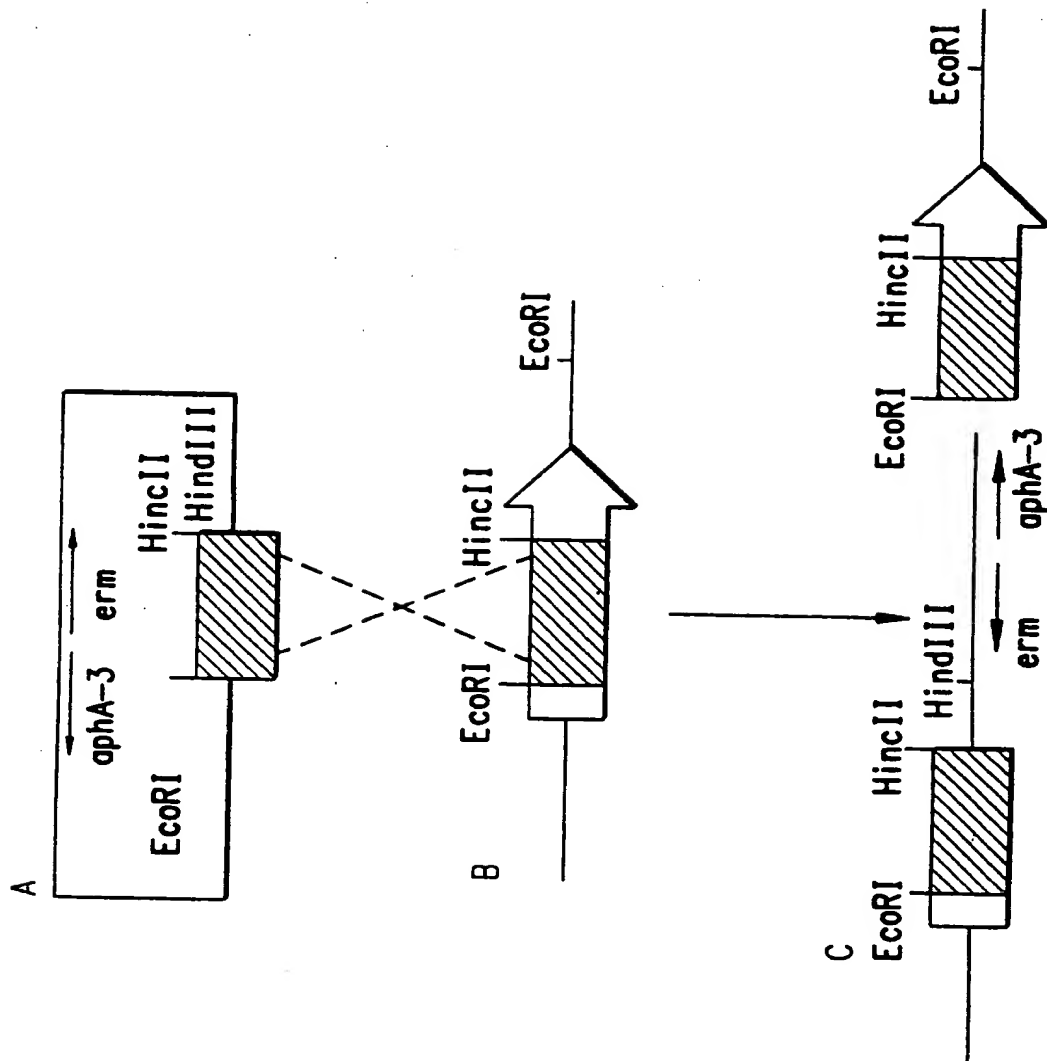


FIG.12

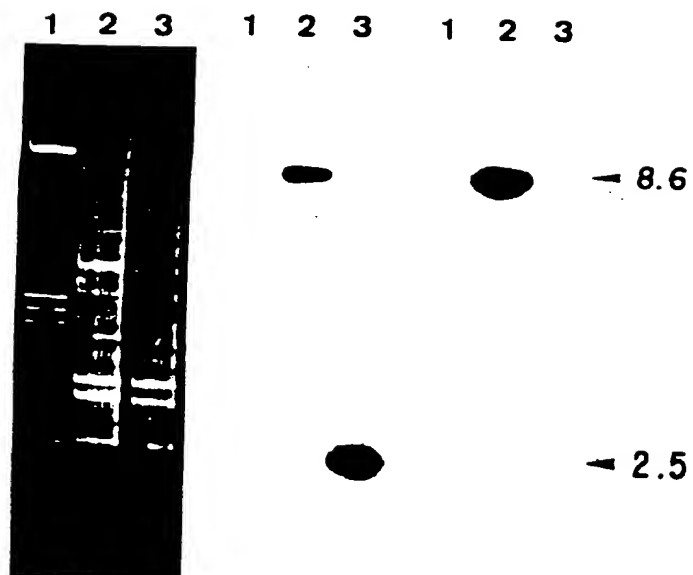


FIG. 13

FIG. 14

FIG. 15